The Journal of the American Medical Association

Published under the Auspices of the Board of Trustees.

VOL. XXXVIII. CHICAGO, ILLINOIS, MAY 3, 1902. No. 18.

Original Articles.

THE FUNCTION OF THE SOLUBLE FERMENTS OF THE BLOOD IN INTRACELLULAR DIGESTION.

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METABOLISM COMPARED TO COMBUSTION.

The constituents of the food, viz., the proteids, fats, carbohydrates and salts are indifferent to oxygen outside of the animal organisms but readily combine with oxygen within the body. As a certain amount of heat is generated and a certain amount of energy liberated during the passage of the food-material through the body, the whole process has been rather crudely compared to a combustion, life to a flame and the body to a machine that burns the fuel that is fed to it. This conception is inaccurate, for it merely considers the most superficial manifestations of the life-process, the initial and the terminal stages of a most intricate process, the finer, intermediary mechanism of which we are just beginning to understand.

If we determine the quantity of oxygen inspired within a stated time-unit and the quantity of oxygen excreted (in gaseous, liquid or solid combinations) through the various emunctories of the body in the same time-unit, we will find that nearly 19 per cent. (that is, nearly one-fifth) more oxygen leaves the body than enters it in the inspired air. This can be explained only in one way, viz.: some of the oxygen (one-fifth) contained in the excreta must be derived from another source than the air we breathe and that other source can only be the food. We can go a step further and say that the oxygen present in the food must be torn out of its combinations by a process that is akin to fermentation in its broader sense, and that consists in cleavage of proteid, fat or carbohydrate molecules; this process, moreover, must occur without the intervention of free oxygen; must, in other words, be anaërobic and take place in a reducing medium.

As a matter of fact, it can be shown that the assimilation and dissimilation of food occurs in two stages, 1, an anaërobic stage, in a reducing medium in the absence of oxygen, in the interior of the cell; 2, an aërobic stage in the presence of free oxygen (hemoglobin) at the periphery of the cell, i. e., chiefly in the blood and lymph stream. Both processes, it appears, are inaugurated by the intervention of soluble, chemical, unorganized ferments that the cells secrete. So-called "vital" processes are only indirectly concerned in these metabolic changes; for the present we are still forced to use the term merely to designate the power of cells in two directions, viz.: 1, their power to build up active, functionating protoplasm from simpler, inert compounds; 2, their power to secrete enzymes with specific properties. Much that was heretofore considered "vital" has been robbed of this dignity by recent discoveries relating to the rôle of enzymes in "intracellular digestion."

The term "intracellular digestion" is employed in contradistinction to extracellular digestion to designate those processes of digestion or destructive metabolism that occur in all the tissues of the body other than the gastro-intestinal tract—in reality it does not even exclude the processes going on in the mucosa and walls of the digestive canal, but merely those that occur in its lumen. As the material contained in the mouth, stomach and intestine is not really within the body, intracellular digestion is essentially synonymous with general metabolism.

Leaving the fate of the inorganic constituents of the food out of our consideration, we will briefly study how the molecules of proteid, fat and carbohydrate material are rent asunder by the ferments, how the smaller torn-off molecules are recombined to form new compounds, how these are again disassimilated to simpler complexes until finally some unfortunate atoms got out of their orbit, so to say, become chained to oxygen and stumble into compounds that have to be eliminated.

THE THEORY OF RECONVERSION.

The fermentative changes occurring within the intestinal tract are essentially physical in character, i. e., the proteids, fats and amylaceous portions of the carbohydrates are hydrolyzed to compounds that can diffuse through animal membranes. The proteids are converted to albumoses and peptones (and in very small part to amido-products), the fats to fatty acids and glycerin, the starches to soluble sugars. That this hydrolysis is merely intended to enable the entrance of the original bodies into the organism proper is manifested by the fact that in their passage through the intestinal wall they are reconverted. Within and behind the intestinal wall, i. e., in the blood of the mesenteric veins and the lacteals we never, consequently, encounter peptone or albumose but only serum-albumin; the same in all probability applies to the fats; glycerin and fatty acids being recombined to neutral fat in their passage through the intestinal wall. Whether or not the sugars enter the blood and lymph directly is not positively determined; a great portion of these sugars certainly reaches the liver as glycogen and is deposited there as such.

This process of reconversion has recently been shown to be due to enzyme-action. It appears that the same ferments that can split fat, e. g., into glycerin and fatty acids possess the power of recombining glycerin

and fatty acids to neutral fat. This process also occurs *in vitro* by the action of lipase, the ordinary fat splitting ferment of the pancreas (steapsin). The discoverers of this "reversion" process determined, moreover, that lipase is concerned in bringing about a condition of chemical equilibrium between the fat molecule (and water) and the products of its hydrolysis; in other words, that it forms a certain proportion of fatty acids and glycerin if neutral fat is present in excess, but that it is also inversely capable of forming a certain proportion of neutral fat from glycerin and fatty acids provided the latter bodies are present in excess in the solution.

The one objection to this theory is the fact that we can not identify ferments in any other way than by their manifestations; we have, moreover, no way of isolating them from the organ-extracts in which they are dissolved. It is not impossible, therefore, that pancreatic extract, or even so-called "pure" lipase contains two ferments, the one that splits fats into glycerin and fatty acids, the other that recombines the two to fat. This objection is strengthened by the observation that a ferment other than pepsin or trypsin, namely, rennet, seems capable of reconverting albumoses and peptones to coagulable albumin. If egg-albumin or fibrin are digested with artificial gastric juice (pepsin-HCl) and the albumoses and peptones that are formed removed by dialysis (a process analogous to the removal of these products from the intestine by osmosis through the intestinal wall) and if to the dilute clear solution of albumose-peptone some rennet is added, a flocculent coagulate of albumin will reappear. As rennet is a normal constituent of the gastro-intestinal mucosa, it seems probable that this ferment is concerned in the regeneration of serum-albumin from albumose-peptone.

DIGESTION LEUCOCYTOSIS.

The question arises, where do these processes occur? In the mucosa, the muscularis, the serosa, the lymph or blood stream? Presumptive evidence is overwhelming in favor of the supposition that the leucocytes in the blood and lymph capillaries of the intestinal wall are in some way concerned in this process (digestion-leucocytosis). We will revert to the rôle of these cells as ferment-carriers later on and show that disintegration of leucocytes, as a rule, precedes the inauguration of many fermentation processes, a disintegration that probably precedes and is accompanied by a liberation of enzymes. We will also attempt to ascertain the source and origin of the ferments that the leucocytes harbor in their interior and that they carry to any portion of the body where they are needed to establish chemical equilibrium. All the ferments are so toxic when circulating freely and are still so universally present that we can only assume that mobile cells, like the leucocytes, bear them in a harmless form through the blood and lymph-stream to their ultimate destination.

Of the food-albumin that circulates in the blood and lymph stream as serum albumin only a very small proportion is built up directly into living protoplasm. The cell protoplasm seems endowed with considerable longevity, so to speak, for only 16 to 20 gr. of cell-protoplasm die in twenty-four hours—a remarkably small proportion in an organism weighing from 70,000 to 75,000 grams (70-75 Kg.). From these figures we know that only 16 to 20 gr. of the circulating serum albumin are directly incorporated into the cell body, are endowed with life and become living protoplasm to take the place of that moiety of protoplasm that dies and is cast off into the blood stream.

The great bulk of the albumin, fat and carbohydrate is simply food for the cells, and the source of the energy they require. With the aid of the enzymes the cells secrete, they split the large molecules. This process occurs in two stages; the first stage is a reduction and like every reduction requires heat; the result is the formation of numerous compounds that possess greater affinity for oxygen than the original bodies; the second stage is an oxidation in which the chemical affinities are satisfied and heat is developed. The result is the formation of highly oxidized end-products that are excreted.

The whole process, then, is a vicious circle—the heat that is converted into chemical affinity is derived from the oxidative processes that satisfy the chemical affinity—once inaugurated, the process goes on indefinitely, provided sufficient potential energy is introduced with the food that can be converted into kinetic energy.

This chemism is altogether analogous to similar processes occurring in the inorganic world. In order to reduce oxid of potassium, e. g., with carbon, heat is required; the result is metallic potassium that possesses great affinity for oxygen; if potassium is oxidized again the same amount of energy is liberated that was originally required for the reduction. We need not postulate any specific "vital" force. The universal laws of the conservation of matter and of energy operate in the same way in the organic as in the inorganic world. Living plants and animals merely possess specific powers of combining and converting matter and of transmuting energy into specific forms of motion that we call vital.

It would lead us too far were we to follow the stepwise degradation of the albumin, fat and carbohydrate molecules in detail; it may suffice to study the principal products of the first anaërobic, reducing stage, and of the second aërobic, oxidizing stage, and to elucidate, as far as we are able, the ferment mechanism of these conversions.

ANALOGOUS PROCESSES IN BIOLOGY.

A clear insight into these processes can be gained by drawing analogies with similar bio-chemic reactions that are carried on by unicellular micro-organisms. The animal body, after all, is merely a conglomeration of numerous unicellular micro-organisms, in which each cell is a special micro-laboratory and leads an independent existence while at the same time contributing its share to the maintenance of the whole. Unicellular organisms are so small compared to complex multicellular organisms and the metabolic changes they bring about in the media they grow in are so colossal in comparison to their bulk, that we are apt to overlook the fact that these metabolic processes are merely incidental, and certainly subservient, to the biologic needs of the cells. The character of the protoplasm of bacteria and of our body cells, moreover, is different only in distribution and not in character.

As a prototype of anaërobic life, as an illustration of the first *reducing* stage of metabolism, the life processes of *tyrothrix urocephalum*, a bacterium that has its natural habitat in putrefying milk, may be studied. This germ, when grown on milk, attacks the proteids of the milk alone and leaves the fats and carbohydrates intact. If oxygen is excluded, it splits the proteid molecule; combines some of the carbon with some of the oxygen, and generates CO_2; combines hydrogen with oxygen and forms water; secretes a proteolytic enzyme that converts other portions of the proteid molecule

into peptones and then into urea, fat, ammonia compounds, tyrosin, a variety of ptomaines and certain intermediary acids. This germ requires some oxygen, but it can derive it from the oxygen atoms contained in the proteid molecule—the oxygen is needed, not for the metabolic processes that are carried on by the enzyme the bacterium secretes, but for the maintenance of the scanty life-processes of the cell.

Altogether analogous processes are carried on by the cells of the animal body. If a piece of muscle is kept in a vacuum at body temperature CO_2 will be developed and water will be formed. There is evidence to show that the fats and carbohydrates are not disassimilated in this first stage, but that the proteid molecule alone is attacked as in tyrothrix and that it is converted into urea, glycogen and fat, ammonia products, leukomaines and a large variety of intermediary bodies. These processes have been studied particularly in the liver, but it can readily be shown that similar processes occur in other organs of the body; it is probable that this form of activity is a universal property of all our cells.

INTERMEDIARY PRODUCTS ARE TRANSIENT.

During life all these intermediary products are immediately oxidized so that it is a very difficult task to detect them. In certain diseases and intoxications, however, in which the aëration of the blood is interfered with, in dyspneic states, in the agonal stage, or immediately after death when the individual cells still live although the blood no longer circulates, these products accumulate very rapidly in the tissues and can be detected there. The reducing properties, finally, of nearly all the organs of the body have been repeatedly demonstrated by coloring methods (Ehrlich) and by feeding- and injection-experiments with iodates, indigo, certain pigments, etc.

The end products of this first stage are carbon dioxid (CO_2), water, urea, creatin, etc., on the one hand, and a large number of intermediary products on the other. The former must be considered "rests," waste products, so to say, that have to be eliminated. Many of the intermediary products travel to the liver and are there forced into new combinations; some form urea, some uric acid, etc., but the majority of the fats, carbohydrates, hydrocarbons, amido acids, together with the original fats and carbohydrates of the food undergo oxidation in the blood stream.

FUNCTIONS OF VARIOUS FERMENTS.

Whereas we have so far been unable to demonstrate experimentally that the cells of our body, like certain bacteria, of which tyrothrix urocephalum is the prototype, secrete enzymes that bring about the processes of proteolytic anaërobic fermentation that we have discussed, we are able to show experimentally that the second, oxidative stage of dissimilation of fats, carbohydrates, etc., is due to the action of numerous soluble ferments that are present in the blood and lymph.

If blood or lymph is allowed to flow directly into a sterile vessel and the vessel allowed to stand for a number of hours at body temperature a progressive loss of the blood sugar will be observed. Occasionally a slight increase in the titre for dextrose will be noticed during the first half hour, followed, however, by a rapid decrease during the hours following. This preliminary increase only occurs when the blood contains some glycogen, and is explained by a preliminary conversion of glycogen to dextrose. Here, then, we see the action of two ferments, one that can convert glycogen to sugar (an amylolytic ferment), one that can destroy sugar (a glycolytic ferment). We can go still further. If we analyze the sugar that is formed from glycogen in the blood, we will find that it consists in part of maltose (a double sugar), in part of dextrose (a simple sugar). By allowing blood to flow into alcohol and leaving the coagulate that forms in contact with alcohol we destroy the power of the blood to form dextrose, and only maltose is formed from glycogen. In other words, the blood contains both a maltase and a glycase, i. e., a maltose- and a dextrose (glycose)-forming ferment, the latter being destroyed by contact with alcohol (Bial).

If chylous fat is mixed with blood or lymph and if the mixture is allowed to stand at body temperature some of the fat will be destroyed and converted into unidentified bodies (possibly fatty acids and glycerin) that, in contradistinction to fat, are in large part insoluble in ether and are dialysable.

Another ferment called oxidase is present in the blood and lymph that possesses the power of oxidizing a number of organic substances; besides, pepsin and trypsin in appreciable quantities, not to speak of the so-called fibrin-ferment, are all found in the blood and lymph.

ORIGIN OF FERMENTS IS OBSCURE.

The question arises, in what constituent of the blood do we find these ferments, in the serum, the red or the white blood corpuscles; where do they come from; what is their ultimate fate?

If the blood is centrifuged and serum and corpuscles examined separately, it will be found that the serum possesses neither diastatic, glycolytic, nor lipolytic properties; an extract made from the corpuscles, on the other hand, does possess these properties to a marked degree. If a piece of one of the veins of a large animal is ligated in two places and excised, then suspended in the ice chest for twenty-four hours, coagulation of the blood does not occur and under favorable conditions red corpuscles, white corpuscles and serum can be aspirated separately. It will be found that the ferment power is inherent in the white and not the red cells. When we consider in addition that the lymph possesses still greater glycolytic and lipolytic powers than the blood, when we remember the phagocytic action of the leucocytes towards all poisons (and the ferments are very toxic) we will agree that these ferments are carried by the leucocytes. As a matter of fact leucocytes possess distinct digestive powers towards bacteria. Finally, if chemotactic bodies are added to the blood that promote rapid disintegration of leucocytes, the ferment-powers of the blood are more rapidly developed—all of which seems to justify the conclusion that the ferments are carried by the leucocytes and that disintegration of leucocytes must precede the liberation of the ferments.

Some investigators claim to have found the ferments in the serum, and as a matter of fact they are frequently there—but only after the leucocytes have begun to degenerate, an accident that can hardly be avoided when the blood is subjected to such manipulations as defibrination, centrifugation, etc. The origin of these blood ferments is obscure; there are three possibilities. They can either be formed in the leucocytes themselves, they can be formed in all or many of the tissues and organs of the body, i. e., by protoplasm in general, or they can be derived from internal secretions of the digestive glands. It is altogether impossible at present

to decide this question. In view, however, of the tendency to specialization that becomes operative in any large congregation of individual cells, the latter view is the most plausible—the digestive glands would then furnish enzymes both for extra- and intra-cellular digestion.

FINAL DESTINATION OF FERMENTS.

Whether the blood ferments after they perform their function are destroyed, eliminated, re-inclosed in leucocytes, arrested in the digestive glands to be re-excreted, or finally are held by such dis-intoxicating organs as the suprarenals, the thyroid and the liver it is impossible to say. As the urine nearly always contains some of the ferments, as they are nearly always present in the liver, and as they certainly must suffer the ultimate fate of all the other constituents of the body, it is probable that all these processes can and do occur.

It has been objected that the ferments are present in such minute quantities in the blood that they can not possibly be credited with an important rôle in intracellular digestion; but this objection is invalid. In the first place they are present in minimal quantities in the extracts we prepare because they are not intended to be present in large quantities at any time nor to be copiously excreted like the digestive ferments. When we prepare our extracts we destroy the cells and force the ferments into solution; besides, we work with small quantities of blood and consequently very small numbers of leucocytes. In studying the action of such an extract, moreover, we see only a small portion of the power that would have been expended had the cells remained intact, had the blood remained alive. I can best illustrate this by comparing the action of the ferment extracted out of a kilo of yeast-cells and the action of a kilo of living yeast-cells. The ferment solution will develop less power by far than the living cells, as in the latter new ferment is continuously being formed; in other words, the action of the ferment accumulating during an hour is only a small proportion of the hourly action of the cells. The ferment solutions from the blood only contain the remnant that is not utilized during life.

Furthermore, nearly all ferment extracts from the blood are made after defibrination or alcohol-coagulation, and it is a well-known fact that fibrin and coagulates retain ferments with a tenacity that makes it almost impossible to separate the two—in this way, too, a large proportion is lost.

From very recent investigations it appears that the ferments are chemically (if they are chemical entities at all!) nucleo-proteids, i. e., derivatives of the cell-nuclei. They are in general so akin to protoplasm both i their chemical reactions and their behavior to various physical and chemical agencies that they must be considered closely related to living protoplasm. As a matter of fact all protoplasm has some ferment-power—ferments seem to be fragments of protoplasm, and living protoplasm can do all that ferments can do and more besides in other directions, viz., it has the power of regeneration (see above) and of "assimilation."

REGENERATION OF PEPSIN BY FIBRIN.

Some investigations that I am at present engaged in seem to point to a still closer connection between ferments and living protoplasm even in its most "vital" properties. If 0.01 gr. of pepsin is dissolved in 95 c.c. of 2.75 per cent. HCl and 5 gr. of fibrin or egg-albumin added, the fibrin will be digested within twenty-four hours and the fluid will become clear; of this fluid 10 c.c. are mixed with 85 c.c. of the HCl solution and 5 gr. of fibrin are added again; this, too, will be digested. This process of dilution can be repeated many times and the digestion of fibrin will proceed almost as rapidly as in the beginning; not until the 9th or 10th dilution will an appreciable retardation become noticeable. If we calculate the dilution, we will find that 1 part of pepsin seems capable of digesting many million parts of fibrin. If these same dilutions of pepsin solution are made without adding fibrin and permitting digestion for twenty-four hours, it will be found that no solution of the fibrin occurs after the dilution is greater than 1 to about 30,000 to 50,000. (This applies to the particular pepsin I am using). The whole process resembles a regeneration of pepsin by contact with fibrin—in other words, a growth in a suitable medium. In the absence of pabulum no growth occurs.

If these findings can be verified and amplified and extended to other ferments, they promise to carry us several steps forward into the borderland that lies between dead and living protoplasm.

EPILEPSY, ITS ETIOLOGY, PATHOLOGY AND TREATMENT BRIEFLY CONSIDERED.*

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In the United States one person in every 500 suffers from epilepsy. In continental Europe the proportion is thought to be somewhat less, though this may be an error due to imperfect statistics; in England the ratio is about the same as in this country.

Epilepsy is one of the oldest diseases of which we have any record. Five centuries before Christ it was described by Greek physicians with much clinical accuracy.

It may be in the infant at birth, or develop immediately after, or its coming may be deferred until man has passed the milestone of life that marks to his credit threescore years and ten.

It comes irrespective of race, environment, occupation, social condition or position; affecting alike the poverty-stricken dweller of the tenement along with the rich who live in palaces.

American statistics show it to be slightly more common in males than in females, while European observers find the opposite true. In some the attacks may occur daily for years and yet produce only the slightest enfeeblement of any of the mental faculties, while in others a few attacks may, in a year's time, largely destroy all the faculties of the mind, producing in the end epileptic dementia. Its seizures may develop with sudden, shock-like violence, striking its victim to earth in the twinkling of an eye, or they may come and go with only the blanching of the face and a momentary void in the operations of the mind. In the same individual we may witness its manifestations hundreds of times in the space of twenty-four hours, at one period of the disease, and we may see months or even years intervene between its paroxysms at another period of the disease. It has no distinctive or pathognomonic symptom, for we find its two most prominent ones—convulsions and the impair-

* Read before the College Medical Society, College of Physicians and Surgeons, Baltimore, Dec. 6, 1901.

ment or loss of consciousness—in many other conditions and due to many other causes. Its causes are legion and its varieties numerous.

Like insanity, we can not satisfactorily define epilepsy in terms. It is a nervous affection, generally characterized by some impairment or loss of consciousness, coincident with some impairment or loss of the power of motor coördination, with or without convulsions; the paroxysms being generally abrupt in appearance and short and variable in duration.

NOMENCLATURE OF SEIZURE TYPES.

As yet epilepsy has no fixed nomenclature for its various types, which leaves us free to present for your consideration two classifications; one based on symptomatology, the other, as far as possible, on etiology; and whichever is elected for use must be a matter of individual choice. The old symptomatic classification of grand mal, petit mal, psychic and Jacksonian is clear and concise and expresses all that is essential when speaking from a symptomatic standpoint only; but it is less scientific and far less valuable for purposes of study than a classification based on causes.

By grand mal we mean a fit of the most severe type, one in which both the body and the mind are profoundly affected, the entire body being convulsed and consciousness entirely lost.

By petit mal we mean a fit of the same general character as grand mal, but much less severe. In this form the faculties of the mind may be disturbed but consciousness not lost, the body being somewhat convulsed, but the patient does not necessarily fall.

By psychic epilepsy we mean that form in which the faculties of the mind suffer almost to the exclusion of the body. In this there is a discharge of nerve force in the regions of the brain that govern and control the intellectual acts, the feelings, emotions, memory and the will. When such attacks are purely mental, we refer to them as psychic epilepsy or psychical epileptic equivalents, i. e., they are equal to and take the place of epileptic convulsions of another kind. It is this form that is followed by the condition we term automatism. The individual is automatic, he acts like a machine; going about after the fit for hours and even for days, performing ordinary acts, but having no knowledge of what he is about.

By Jacksonian epilepsy we mean convulsive movements confined to one leg, one arm, one side of the face, or a single group of muscles; in reality, a mono-spasm due to a circumscribed irritative lesion affecting some part of the motor area of the brain. In this form consciousness as a rule is not lost and oftentimes it is not even disturbed, the patient in some instances being the witness, so to speak, of his own seizure. Jacksonian is a partial epilepsy only and we must be careful not to confound it with epileptiform convulsions due to an irritative lesion somewhere in the periphery and affecting the brain reflexly. Generally speaking, we may differentiate between the two by ascribing Jacksonian epilepsy to proximate causes, that is, causes acting primarily within the brain, and epileptiform convulsions to distal causes, or those acting first in other parts of the body, then on the brain, affecting that organ reflexly. But the lines that separate epileptic phenomena are of necessity loosely drawn and this must be so when we remember how intimately associated are all the parts of the body with the brain and how much more intimately associated are all the parts of the brain the one with the other. A knowledge of cerebral localization in the study of epilepsy is an absolute necessity; for not only should we know the seat of the lesion in the brain in every type of convulsion, but we should know the form the convulsion will take, the order in which it will progress when the nervous discharge travels to contiguous areas, spreading from center to center, finally involving the entire organ. What should interest us most is the site, the primary condition, and the manner in which the fit starts, for it will be through studies of these that we will be most apt to find the cause.

These four types, then, grand mal, petit mal, psychic and Jacksonian, make up the classification based on symptomatology. Until we understand the commoner forms of epilepsy, the simpler we make our classification, based on etiology, the better. Once understanding the main forms, we may elaborate all we like.

At present I know of no better way to attempt a practical classification of this kind than to make three age periods, as follows: 1, up to the age of 20 years; 2, during adult life; 3, after the beginning of senility. Such a plan is at once simple and direct and arranged in the order of the importance of these periods, because most cases of epilepsy develop before the 20th year. Gowers says that three-fourths of them begin before then, while our own studies, based on over a thousand cases, show an even larger proportion.

Bearing in mind the fact that this is the developmental period and that transmitted defects generally come to light during this period, we group its epilepsies under two heads: primary or developmental and accidental. The latter also occurs during the adult period, but with far less frequency. Two kinds of heredity must be considered, similar and dissimilar, the former meaning the transmission of the same disease from parent to child; the latter meaning that alcoholism, insanity, tuberculosis, chorea or a kindred affection in the parent is changed in type in transmission so as to appear as epilepsy in the child. Dissimilar heredity is recognized by Moreau de Tours, Hammond, Nothnagel, Féré and others and it constitutes one of the problems that science may investigate in the future.

It is the epilepsies of the primary or developmental group that we are apt to carelessly designate as idiopathic, which means that we do not know the cause; while, as a matter of fact, a little persistent study of every case from all possible standpoints might make it hardly necessary for us to clothe our ignorance in that way. In a study of some 1100 cases of epilepsy that have come under our observation during the past six years, we found that 16 per cent. were due to similar heredity, 15 per cent. of the males and 17 per cent. of the females directly or indirectly inheriting the disease. In the same cases we found that alcoholism in the ancestors caused it in 16 per cent. of the males and 12 per cent. of the females. Insanity in the ancestors was definitely established in 7 per cent. of the males and 10 per cent. of the females. Tuberculosis existed in the family in 15 per cent. of the males and 12 per cent. of the females, making an average of 14 per cent. It seems that alcoholism in the father is more likely to produce epilepsy in the child than when the mother is alcoholic and that insanity in the mother more often causes epilepsy in the child than when the father is insane. Taking all hereditary factors together, we found either similar or dissimilar heredity to have been the cause of epilepsy in 56 per cent. of the entire number of cases studied, leaving only 44 per cent. due to other causes.

Accidental forms come next. These include the large number of cerebral palsies, amounting all-told to 117, or over 11 per cent. of the entire number of cases we studied. Other cases due to trauma—comparatively common in childhood; to accidents incidental to birth; to the poisons of specific diseases, like scarlet fever, measles, diphtheria and whooping cough; to the toxemias of intestinal origin, and to certain chemical poisons, which latter are not so active here as later in life, belong to the accidental group. We do not mean that whooping cough *per se* may cause epilepsy; but that it may produce a condition out of which convulsions may arise. Accidental forms are also met with in adult life; but they are rare as compared with the earlier period.

Primary or developmental epilepsy after 20 years is probably never met. After this age it is due to syphilis or traumatism, either of which at first produces epileptiform convulsions only; to alcoholism; to ptomain poison, and rarely to some chemical poison, like lead, which produces the so-called saturnine epilepsy. The accidents incident to maternity may cause epilepsy. The third period, marked by the beginning of senile changes, has fewer epilepsies still; those that do occur being due to arteriosclerosis; to organic heart disease; to intestinal toxemia in favorable subjects, and to traumatism. We should be loth to say that a single convulsion, occurring for the first time in an individual who had reached adult life, was epileptic. It is better not to so stigmatize the patient until the diagnosis can be made beyond doubt.

PATHOGENESIS OF EPILEPSY.

If we should regard epilepsy as a functional instead of an organic disease, it would be better to use the word physiology in place of pathogenesis in speaking of the histologic changes that are thought to occur at the time of a fit. But so far as we now know, both may be admissible. There is some difference of opinion as to the immediate cause of a fit and the manner in which it occurs; but the theory that finds most favor is based on the assumption that convulsions are due to sudden discharges of nerve force in the sensory-motor cells of the brain.

Inhibition is the highest faculty of the human mind, and there are reasons for believing that the sensory or angular cells in the second layer of the brain exercise a power of control over the motor cells in the layer above. When these sensory cells become weakened or destroyed, they lose their power of control and the motor cells explode; that is, they suddenly and violently give off nerve force at irregular intervals. This is true of all the epilepsies, no matter of what form or in what part of the brain they occur. It has also been thought that overproduction of nerve force by the large motor cells, together with molecular instability, causes these periodic discharges or overflows of nervous energy. If we could more closely analyze the condition of inhibitory insufficiency, or the lack of power of self-control found in these sensory cells, we would probably find them structurally incomplete, too small in capacity for the work they have to do, poorly insulated or impaired through other causes, congenital or acquired.

It will not be out of place in this connection to speak of the functional divisions of the nervous system made by Hughlings Jackson into lowest, middle and highest levels—"fit levels" they have been called. The lowest level corresponds practically with Marshall Hall's "spinal system," and includes the gray matter in the spinal cord in its upward prolongation in the brain as far forward as the oculo-motor nucleus. The centers in the cord, like those of the other levels, are sensori-motor; they are automatic in action and control reflex acts that do not rise into consciousness, such as deglutition, respiration, intestinal peristalsis, vasomotor and cardiac action and perhaps highest of all, reflex movements of the pupils. The middle level is more complicated and less easily defined; but broadly speaking it includes the motor area of Ferrier, most of the temporo-sphenoidal lobe, the gyrus fornicatus and the inferior parietal lobe. This level is also sensori-motor in character. The centers of the highest level include the anterior or prefrontal lobe and the posterior or occipital lobe, embracing the organs of the mind.

While these divisions are more or less anatomically distinct, functionally they bear the most intimate relationship one with the other and especially is this true of the two highest levels, located wholly within the brain. Fits that originate in one level and that are at first distinctive of that level, inasmuch as they indicate the function and kind of nervous tissue involved, almost invariably spread so as to more or less affect all the levels and it is a question as to how far we should go in a study of epilepsy based on these rather artificial divisions of the cerebro-spinal nervous system.

PATHOLOGY.

As yet the pathology of epilepsy is wrapped in considerable obscurity. Being a disease that affects the brain, we must examine that organ for whatever pathologic changes our present methods of investigation enable us to detect.

Marinesco and Serieux claim to have noted three specific lesions after paroxysmal discharges in uncomplicated epilepsy, as follows: 1, a partial disappearance of the tangential fibers of the cortex, the "neurons of association," so-called, and similar to lesions described in cases of general paralysis; 2, an infiltration of nerve cells by leucocytes; 3, the disappearance of the fine granules in the protoplasm of the cell substance of the cortical nerve cells. The latter are probably due to bio-chemical changes dependent on nutritive processes.

In epileptic insanity Bevan Lewis has noted changes in the cortical cells of the second layer. This change begins in the nuclei, which have a bright, refractive, spherical body of a fatty nature in the center, and which spreads until it occupies the whole cell, the cell protoplasm itself eventually showing signs of degeneration and breaking down completely.

Physiologically, it is known that the cell nucleus plays an important part in the functional activity of the cell and that its absence or impairment is a constant accompaniment of brain disturbances indicated by loss of control. The small pyramidal cells of the second layer are assumed to be mostly sensory in function and to be closely connected with the deeper cells, which are probably less sensory. It is also assumed that the cells of the upper layer exercise an inhibitory control over those of the deeper layer and, when this control is destroyed or impaired through disease, the discharge of the latter will be subject to changes in nutritive rhythm. This view, however, is substantially differed from by Gowers and Jackson. The former seems to consider epilepsy to be essentially a disease of the inhibitory fibers. He regards the tangential fibers of the gray matter, the neurons of association, to be more at fault than the cells themselves.

Still another view of the essential lesion is held by Hughlings Jackson, who believes that the presence of

epilepsy may be explained on the basis of increased nutrition, which in turn causes exaltation of function, issuing periodically in strong discharges. Primarily, Jackson thinks the fault is an arterial or venous one and only secondarily nervous and then due to vascular changes. He seems to imply that the true pathologic cause is to be sought in nutritive disturbances probably caused by a change in the circulation due to the occlusion of a vessel in the arterio-cortical area, which is capable of giving rise to a discharging lesion.

When death is due to status epilepticus, there is an intense congestion of all the viscera, and especially of the brain. Macroscopically, the veins and sinuses are deeply engorged, meninges injected, the white substance of the brain filled with punctiform hemorrhages and the gray matter darker or slightly pinkish in color. We are unable; however, at this time to say how far these grosser pathologic conditions may be the result instead of the cause of epilepsy.

THE COURSE AND PROGNOSIS.

Epilepsy tends to shorten life. Any epileptic may die suddenly at any time. I am of the opinion that more epileptics die as the result of a single fit than is generally supposed. When death comes suddenly, it is due to asphyxia, caused by the severe and prolonged contractions of the muscles about the throat and chest.

The gravest danger to which epileptics are exposed is the condition we term status epilepticus, which is likely to develop in any form of epilepsy at any time, and it is the cause of death in about 25 per cent. of all fatal cases. Epileptics are also especially prone to diseases of the heart and lungs. In 95 deaths at the Craig Colony, occurring in 6 years, 24 per cent. of them were from pulmonary tuberculosis, 10 per cent. from organic diseases of the heart and 8 per cent. from pneumonia.

Under proper treatment, that is, under conditions that enable us to absolutely control all the habits of the patient, from 8 per cent. to 10 per cent., if taken in time and treated long enough, may be made to recover.

The most discouraging symptom in the course of the disease is seen when it affects the mind and those most apt to suffer in this way inherited the epilepsy or a strong predisposition to it. The forms of mental impairment are numerous and include feeblemindedness, imbecility, idiocy and various forms of insanity, some of them stable and some not. Most epileptics who become permanently insane have epileptic dementia. Delusional insanity in epilepsy is rare, but some form of mental impairment may be looked for in fully 90 per cent. of all cases in which the disease has existed some years.

In Jacksonian epilepsy, where the convulsions are mostly confined to the motor portions of the brain, the individual may live to old age and have a fairly good mind to the end.

THE EPILEPTIC AURA.

The word "aura" signifies "breath," and it is defined as a "sensation like a gentle current of air rising from the limbs or body to the head, a frequent forerunner of an epileptic attack." It is also applied to "any slight symptom preceding an attack of any disease or paroxysm"; but it is most commonly applied to the great variety of sensations that epileptics experience just before a seizure. The aura is really a symptom, a part of the fit and bears the same relationship to the convulsion that convulsions do to the disease, for the convulsion is not the disease, but a symptom only.

We may give the most common forms of aura, regional classifications, according to their anatomical location in the body. Thus, those from the abdominal and chest cavities are either epigastric, laryngeal or cardiac, the two former being closely associated and probably due to the same cause. The auras of the special senses, including gustatory, meaning a peculiar taste in the mouth; auditory, a buzzing or ringing in the ears; visual, including flashes of light or of various colors passing in succession before the eyes; olfactory, the smelling of unusual odors; cephalic, such as giddiness and headaches; and psychic, including disturbances of the emotions, dreamy states, etc. You will meet with many anomalies in these forms and occasionally see others of a rare nature. The epigastric aura is the most common of all, ocurring in about 20 per cent. of all cases, and is due, Merciere thinks, to the fact that in primordial life the stomach and epigastrium was the earliest and most important seat of pain and pleasure.

A close study of the auras is important, for they probably indicate the seat of the irritative lesion that produces the convulsion, or the seat in the brain of the primary discharge of nerve force.

DIAGNOSIS.

In making a diagnosis, you will ordinarily have but little trouble, if you are able to see the patient while in a seizure; without this, errors are always possible.

The convulsions of hysteria closely resemble epilepsy and certain toxic and symptomatic convulsions may be mistaken for epilepsy. Hysterical patients do not bite the tongue nor fall regardless of injury; while they exhibit the most violent muscular contractions, they are yet coördinate, i. e., they throw themselves about, kicking and striking and rolling over and do not have tonic followed by clonic muscular spasms common to epilepsy. Sometimes we find epileptic and hysterical convulsions in the same individual, attacks of one kind alternating with the other.

We found on studying the temperature laws of epilepsy, based on 1000 observations, that a rise of temperature follows about 55 per cent. of all attacks, the temperature going highest, as a rule, after grand mal seizures, in which muscular contractions were greatest; but also going sometimes up to 102 or over, in petit mal and psychic attacks, probably indicating in the latter case the disturbance of the thermal centers in the brain. Bourneville has said that the temperature is augmented after every seizure, but our observations do not agree with those of this distinguished physician. Hysterical convulsions rarely give rise to temperature elevation, and the thermometer may be of value in making a diagnosis between convulsions due to hysteria and those of genuine epilepsy.

TREATMENT.

The treatment of epilepsy demands that the epileptic and his disease be considered as a unit and treated as such. If we neglect one, it must be at the expense of the best interests of the other.

Forms of treatment must vary to meet individual requirements, and to do this we group them under four heads: Medical, surgical, dietetic and moral. The first three may be employed successfully by every physician and so may the fourth, where the patient is so placed as to be under the physician's full control.

The first thing a patient will look for, after coming under your care, will be a reduction in the frequency and severity of his attacks and you can best gratify him in this respect by putting him on some anti-spasmodic. Among these may be mentioned camphor, opium and its

derivatives, valerian and belladonna. The opium-bromid treatment of Fleschig, popular a few years ago, is valuable in some cases. It consists in the administration of opium for six weeks, beginning with one-half to a grain three times a day, increasing up to 10 to 15 grains a day, when it is suddenly stopped and bromid given in doses of 90 to 120 grains a day. Codein may be substituted for opium. Bechterew used the bromids in conjunction with adonis vernalis with gratifying results, finding the latter better than digitalis, which it resembles. Simulo, a South American plant of the hyssop family, has been found useful in certain cases. It is given in the form of the tincture, 5i to 5ii at a dose.

Bromipin, a brominized oil of sesamum, has lately come into use and is a good substitute for the bromids. It is a heavy oil and in some cases you may find it difficult of digestion. It is best given in the form of an emulsion, which makes it more palatable and which is prepared as follows:

℞ Bromipin ..... 4 oz.
Simple syrup ..... 4 oz.
Spts. peppermint ..... 4 dr.
Mucilage acacia, enough to make ..... 16 oz.

Of this the dose is one to two or three tablespoonfuls three times a day, an hour or so after meals.

Its advantages are many. It does not produce the disfiguring bromic acne and, given in the form of an emulsion, it is nutritious, generally increasing the weight, making it especially valuable in feeble and esthenic cases. It may be used hypodermically in status patients, without producing local abscess like that following the hypodermic use of the bromid salts. One disadvantage of its use at the present time is its cost, being about five times that of the bromids.

If you use the bromid salts, you will get better results by the hypochlorization method, i. e., withdrawing all sodium chlorid from the patient's food and salting it with the bromid of sodium. By this you will greatly enhance the action of the bromid, 10 or 15 grains of the sodium salt given in this way being equal to 30 or 40 given in the ordinary manner.

If you have a case of status to treat, the best formula for stopping the attacks is the following:

℞ Potassium bromid ..... 2 oz.
Chloral hydrate ..... 5 dr.
Morphia sulphate ..... 2 gr.
Tincture opii deodorata ..... 60 m.

Add enough water to make 16 oz. and give the patient one oz. after he has had six attacks in rapid succession. If the first dose is not effective, it may be repeated in two hours.

The epilepsies due to self-intoxication call for special treatment and it is important that we regulate the diet of such patients as promptly as possible, for the intoxication comes from putrefactive changes in the alimentary canal. Beta-naphtol or salol in 5 gr. doses are useful in overcoming conditions of intestinal toxemia. In some cases the thyroid extract can be used to advantage, and the best results from its use have come from cases in which there were evidences of arrested mental development. I have seen marked improvement follow its use in the higher grades of idiocy.

The dietetic treatment of epilepsy is no less important than its medical. We can not specify in this brief paper all the food articles prohibited or allowed, no more than we can mention all the drugs that are of value, and it must suffice to say that all rich foods, such as pies, pastry, cake, things fried in grease or highly seasoned, as well as pork, veal and cabbage, should be proscribed, the dietetic principle being that the epileptic should live on the lightest and most nutritious foods obtainable, including milk, eggs, cereals thoroughly cooked, and fruits. Of meats he should eat sparingly, then take beef, lamb, chicken, fish or game, and then only at noon. The evening meal should always be light.

As to the benefits of surgical intervention, our experience does not enable us to take a very hopeful view. In a study of over forty cases that were trephined, four of which were done at the Colony by Dr. E. A. Sharp, second assistant physician, there was no permanent benefit in any case. Some went for several months after the operation without a seizure; but in every case they eventually came back. The chief fault we have to find with such operations, when done for injuries to the brain, is that they are delayed too long after the receipt of the injury. In the meantime, the epileptic habit has become firmly established. If the injury is recent and clearly causes the convulsion, we should operate. If it is old and we are in doubt as to the advantages of an operation, it may be well to operate in some cases any way, both for the temporary benefit the patient may enjoy and for the gratification it will give the patient and his friends. But before doing the operation, make every possible effort to exclude heredity as a cause of the disease and be sure that convulsions did not exist before the infliction of the injury.

The moral treatment of the epileptic is urged because he is so often the victim of a vitiated stamina, acquired as a heritage, which makes him need a power other than his own to help him overcome his unfortunate condition.

Because of his disease he is exiled from society; denied the acquisition of trades, when his affliction comes in youth; and is kept from the public schools; the use and enjoyment of all of which, for most epileptics and to some degree, is essential for his welfare. Since his malady denies him the right to make use of all these things, and since, as such things ordinarily exist, they are not in the best form for his use, special institutions, in the way of colonies properly designed and constructed, should be created for him.

BLACKWATER (HEMOGLOBINURIC) FEVER

WITH A REPORT OF TWO FATAL CASES OCCURRING IN THE U. S. A. MILITARY HOSPITALS AT MANILA, P. I.*

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[From the Army Pathological Laboratory, Manila, P. I.]

CASE 1.—Charles E. B., private, H Company, 12th U. S. Infantry; age, 27; service, 3½ years; born in Pennsylvania; admitted to First Reserve Hospital, Manila, P. I., 5 p. m., Nov. 9, 1901.

History: Arrived in Philippine Islands with troops March, 1899; was in good health at this time and remained so until January, 1901, when he had chills and fever of moderate severity, which were controlled by quinin. He has had no chills or fever for some months.

Present Illness: This man was performing duty up to within two days of admission to the First Reserve Hospital. He came from Tarlac, Luzon, November 9 (the day of admission to hospital) to await transportation to the United States, time of service drawing to a close. The corporal who brought him to the hospital states that patient was slightly jaundiced at time of leaving Tarlac. Jaundice increased on way to Manila; he passed "bloody" urine twice on way to hospital. Further history obtained through Asst.-Surgeon Mc-

* Paper read before the Army Medical Lyceum, Dec. 3, 1901, at Manila, P. I.

Andrews. patient had chill at Tarlac, November 7 (two days before admission). I saw the case one hour after he arrived in the hospital, 6 p. m., November 9, through the courtesy of Dr. Beal, Asst.-Surgeon, U. S. A.

The man was markedly jaundiced at this time, the sclerae of a deep yellow color and skin of the same hue. He was conscious.

Patient, nervous, with anxious expression, stated that he had had no chill or fever, save that two days ago, for a number of months, and that he had been "doing duty" up to the day before leaving Tarlac. He started for Manila, not to go into hospital, but to await transportation to the United States. After getting on train (Tarlac is about 60 miles from Manila, on Manila and Dagupan R.R.), he felt worse, and on journey passed "bloody" urine twice. He had taken 24 grs. of quinin sulphate in capsules since chill (two days ago). He describes his urine as dark red-brown. He states that he passed bloody urine after chill before he took quinin. Temperature at time I saw him, 6 p. m., November 9, was 101.5. Fresh blood examination made in ward at this time was negative for malarial parasites; there was, however, considerable of a leucytosis, as shown by the presence of one or more leucocytes in each microscopic field (1/12 obj., No. 1 oc.) He had not passed much urine. Dried blood films were made; these stained by eosin and methylene blue. A careful search was made for malarial parasites in the stained specimens, but none were found.

November 10: Patient spent a bad night; did not sleep; vomited frequently clear, greenish fluid; bowels moved three times; stools loose and contained much blood; there was a constant dripping of bloody urine from urethra during night; he was catheterized at 11 p. m. and 4 c.c. dark, chocolate-red urine withdrawn (which was sent to Army Pathological Laboratory for examination).

On the evening of the 9th, shortly after admission, he was given a 1/30 gr. strych. sulphate subcutan., and quinin hydrochlor., 0.65 gm. subcutan. every hour for 4 doses (i. e., 2.60 gms., 40 grs., of quinin given subcutan. the night of admission). He remained delirious the greater part of the time until death. His temperature at 10 a. m. was 99.4; pulse, 104; respiration, 20; at 4 p. m., 101.5, 120 and 26 respectively. Pulse was very weak at 3 p. m., and patient had convulsion. Nitroglycerin subcutan. and strych. sulph. given subcutan. with slight effect. Patient had another convulsion at 5:30 p. m., and died at 6 p. m.

Urine examination: Quantity about 4 c.c.; reaction slightly acid; color dark smoky; albumin approx. .25 per cent. by weight; sediment considerable in amount, brownish in color and microscopically is made up chiefly of a brownish granular detritus; there were many brown granular casts and an occasional red blood cell. Test for hemoglobin positive, hematin crystals obtained.

Autopsy Record.—Body that of a man apparently between 25 and 30 years of age, well developed and well nourished; rigor mortis marked; marked general icterus; subcutaneous fat normal in amount, and icteric.

Few pleuritic adhesions, both lungs adhering to costal pleurae; right lung shows some edema throughout, left only slightly so.

Heart, weight, 345 gms.; muscle pale and flabby; valves and cavities normal.

Liver, weight, 1880 gms.; slightly enlarged, pale, swollen and brownish-yellow in color; on section blood vessels engorged; no pigmentation of organ.

Spleen, weight, 450 gms.; markedly enlarged; soft, dark chocolate in color, pulp much increased.

Kidneys, weight, combined, 330 gms.; dark-red in color; on section cortex is swollen and markings of kidney obscured by intense congestion.

Bladder was empty; apparently normal.

Blood of spleen and liver negative for malarial parasites. Cultures negative, save for colon bacillus, after 4½ days.

Anatomical Diagnosis: Direct and immediate cause of death acute nephritis; hemoglobinuria; acute hepatitis; general icterus; acute splenic tumor. Indirect and determining cause undetermined.

CASE 2.—Charles T., civilian, had served as a private in A Company, 24th Infantry, up to August, when he was discharged, term of enlistment having expired. Up to recently he was employed as teamster, Q. M. D. (Admitted to Hospital 3, November 7.)

Past History: He has been in the Philippine Islands since arrival with 24th Infantry, in June, 1899. He had (malarial) fever in northern Luzon, November, 1900. No chills or fever since then, up to day before admission, when he had slight chill, followed by fever and profuse sweating; vomited frequently and had severe pains in right side, hip and shoulder. After chill passed dark "blackberry" colored urine. He came in with temperature of 98.8. Soon after admission vomited considerable greenish, bile-stained fluid.

November 7: Blood examination for malaria was negative. Urine examination gave sp. gr. 1,015; red-brown color; acid.

Blood count showed: red cells, 1,900,000; white cells, 22,000. Urine: sp. gr. 1007; color, smoky; albumin, trace; sugar, negative; acid, reaction; microscopic examination shows specimen to be filled with a brownish granular detritus; there were many brown granular casts and an occasional decolorized red-blood corpuscle.

November 11: Urine, sp. gr. 1011; smoky; albumin, .5 per cent.; sugar, negative; sediment, practically same as last sample, an occasional blood cell, much brown granular detritus and moderate number of brown, granular casts; test of urine for hemoglobin positive. Examination for malaria repeated every day (no quinin given) was negative for parasites in both fresh and stained specimens.

November 11, treatment had been directed toward producing diaphoresis and flow of urine; hot packs; saline cathartics and stimulation by nitroglycerin. Patient passed but little urine, and this of a smoky to dark chocolate color. Patient died at 11:40 a. m. Clinical diagnosis: Acute parenchymatous nephritis; uremia.

Autopsy Record.—Autopsy 3½ hours after death, by Capt. J. J. Curry, asst.-surgeon, U. S. V.

General appearance: Body that of a colored man, apparently 27 years of age, medium height, well nourished; conjunctivæ and mucous membranes moderately jaundiced.

Lungs bound to costal pleurae by easily broken adhesions; otherwise, apparently normal. Heart is normal in size, muscle pale and flabby, valves and cavities normal.

Liver is much enlarged, pale-yellow in color; on section pale, yellowish and cloudy; capsule covered with a thin, fibrous exudate. Gall-bladder moderately distended with a viscid, dark-brown bile. No pigmentation of liver. Spleen is moderately enlarged; firm; no pigmentation. Kidneys are enlarged, firm and of a yellowish tint; contain numerous, punctate subcapsular hemorrhages; on section substance is acutely congested and contains numerous hemorrhagic infarcts. Appearance like subacute kidney on which acute process is implanted.

Stomach is normal; contains a small amount of yellow, bile-stained mucus.

Intestines are apparently normal.

Postmortem Microscopic Findings: Blood and pulp from spleen and kidneys negative for malarial parasite. Cultures negative; no growth after 4½ days.

Anatomical Diagnosis: Direct and immediate cause of death, hemoglobinuria; acute nephritis; acute hepatitis; general icterus; acute splenic tumor. Indirect and determining cause undetermined.

Hemoglobinuric, or blackwater fever, was first described by French naval surgeons stationed off the northwest coast of Madagascar (Manson). These names are applied to a fever, generally spoken of as non-contagious, which is characterized by the presence of hemoglobin in the urine, and by a marked jaundice. This same condition has also been reported under the names, "bilious remittent fever" and "West African fever." Many investigators in the field of tropical medicine regard it

to be of malarial origin. Koch and others, however, believe that blackwater fever arises from other cause or causes than malaria.

These terms, blackwater fever, hemoglobinuric fever, etc., describe but one symptom, which symptom may occur in a number of conditions. Therefore it is not to be wondered at that such a wide difference of opinion should exist among investigators. Blood pigment in the urine occurs not only in the course of malarial fever, but it may also occur in a number of septic, or toxic fevers. It occurs in rheumatic, typhoid and typhus fevers, and in scarlet fever; also, in yellow fever, and in poisoning by phosphorus and some other chemicals.

It is well to bear in mind all this as well as the fact that, in the tropics there has, up to very recently, been but little scientific or accurate work done in study on the etiology of disease.

The word "malaria," too, has been much abused in the tropics, as it has been elsewhere. While the malarial fevers are very common in the tropics—one of the two most common diseases (dysentery the second in frequency) occurring in the Philippines as shown by sick report—still there are many other diseases of frequent occurrence. We meet here a large proportion of the various diseases found in temperate zones, and in addition there are many unrecognized and imperfectly described conditions.

There is a tendency among many tropical disease authorities to make "malaria" responsible for the great lion's share of all ailments. It is undoubtedly responsible for the majority of ailments in many tropical districts, but this does not apply by any means to all the tropics. It certainly does not apply to the Philippine Islands.

In certain districts of these islands there exists the most virulent type of tropical malarial fever, but this is not the rule. The type here is generally comparatively mild, and yields readily to treatment. I believe the same holds true of many other tropical countries.

In explanation of the above remarks I wish to repeat what I have said before: that while I realize that malarial fever is a very important factor in the production of a large and serious sick report, in these islands as well as in other tropical countries, still I think that, as a rule, its importance is magnified at the expense of other very important and serious conditions. Malaria has been for years a refuge, a cloak for our ignorance. Even the best are prone to fall back on "malaria," especially here in the tropics. Truly, "malaria" covers a multitude of sins.

I have found many cases, diagnosed malarial fever here, to have tubercle bacilli in their sputum, and I have also many times found at autopsy in such cases pulmonary or general tuberculosis. We are especially liable to be too easily satisfied with the diagnosis of malaria, forgetting that many other conditions found here simulate, especially in the chronic type, the malarial fevers. Then, too, even when undoubted malarial fever exists, it is very frequently only the minor factor in producing the symptoms in the sick man.

Malarial fevers are prone to occur in men sick from other diseases, especially in diseases running a subacute or chronic course. Thus in the course of dysentery and of tuberculosis it is common. It occurs frequently in the convalescence from typhoid fever, and in the subacute or convalescent stage of Malta fever.

I have seen often men coming into the First Reserve Military Hospital (Manila, P. I.) from all parts of the islands with diagnosis of "malaria," who had typhoid fever or dysentery and a number with acute tuberculosis. In only 9 cases out of 255 which came to autopsy at that hospital was malarial fever the primary cause of death, and in but 8 others were there evidence of chronic or recent malarial fever (pigmented organs or parasites in splenic pulp). In the same series, 10 deaths were due to pulmonary tuberculosis, 40 to typhoid fever and 98 to dysentery.

We hear but little of tuberculosis in the tropics, while it is one of the most important and fatal diseases here, ranking next, and close in fatality to dysentery, among the natives, and standing high up among the list of fatal diseases among the Americans and others of the white race. During the last 11 months we have found at the Army Laboratory, in the sputum of officers and men, tubercle bacilli in 43 cases out of a total of 237 cases examined. Most of these cases were thought to have malaria in the beginning. Tuberculosis is commonly diagnosed calentura by the native doctors, and almost as frequently "malaria" by his white confrère.

Geographical Distribution.—Blackwater fever is practically confined to the tropics and subtropics, though it does occur occasionally farther north, cases having been reported in Georgia and other Southern U. S. States. This fever is very common in equatorial Africa, especially on the west coast where it is well known under the name of West African Fever. Copeman mentions that on the Gold Coast (West Africa) no less than 38 per cent. of the Europeans residing in certain settlements are annually attacked with this fever. Blackwater fever also occurs in Java, New Guinea and in districts in some of the South American countries. Marchiafava and Bignami mention that it occurs in Sicily and Sardinia.

Manson reports this fever to have been observed in southern China, in parts of the Eastern Peninsula and in the Malay Archipelago; also in India. It is strange that until recently the writers on Indian diseases have never mentioned it. Manson thinks that possibly this disease is of recent introduction into India. He says: "It is difficult to believe that it could have escaped the attention of these capable and acute observers.

In general its geographical distribution corresponds with the distribution of estivo-autumnal malaria, whether in the tropics or temperate zones. Marchiafava and Bignami are responsible for the statement that it is very rare in the Roman Campagna, where estivo-autumnal fever is common.

Etiology.—Hemoglobinuria, as mentioned above, occurs in the course of a number of toxic and septic infections, and after poisoning by certain chemicals, as well as in malarial fevers. Marchiafava divides these hemoglobinurias into several groups. He says: "Given the imperfection of our present knowledge we are obliged to divide the hemoglobinurias occurring in malarial subjects into several groups, and as the criterion for such distinction, we take in the first place the action of quinin, and in the second place the presence or absence of the malarial parasites in the blood. In the first group he places those cases in which quinin appears to be the exciting agent of the attack—quinin hemoglobinuria. In the second group he places all cases which occur without our being able to ascribe the attack to the toxic action of quinin, and in whom active malarial parasites are present, or where the malarial fever has run its course. This class he calls "malarial hemoglobinuria." Marchiafava and Bignami say little of the hemoglobinurias other than

those of malarial origin. They point to the frequency of the occurrence of attacks of hemoglobinuria in connection with the malarial fevers, and they believe there is an intimate relation between hemoglobinuria and the estivo-autumnal infection. Marchiafava and Bignami, as well as many other investigators, fail to explain the large class of hemoglobinurias which occur without any evidence of the malarial infection. They use frequently the indefinite term "malarial influence."

There have been reported during the past few years, by competent observers in Africa and elsewhere, a number of cases of blackwater fever in which there was no evidence of a malarial infection as the cause. We have in our two cases evidence that blackwater fever does occur without any evidence (either during life or at postmortem) of a malarial infection.

Symptoms.—The attack of hemoglobinuria comes on suddenly without any characteristic prodromata. Generally the attack begins with a marked chill which is accompanied by more or less vomiting of green bile, the vomiting being usually severe. Following the chill in a very short time the patient voids dark smoky, or blood-colored urine. Coincidently, or within a few hours, he becomes jaundiced, the icterus in grave cases becoming rapidly more and more marked. The degree of the icterus indicates, as a rule, the gravity of the attack. In mild cases the icterus may be slight. The attack lasts from 4 to 6 days; it may be shorter (24 hours or less), and occasionally it is prolonged beyond six days.

Physical Examination.—In severe cases there is marked physical depression, headache and either somnolence or delirium. Abdominal symptoms present are, tenderness on pressure in the epigastric, hypochondriac and lumbar regions, and often marked tympanites. The liver is appreciably enlarged, also the spleen. The temperature rises, as a rule, rapidly to 103, or over; exceptionally the fever does not go over 100.8. The fever then continues with irregular remissions to the end.

Termination.—The prolonged cases are usually grave, but exceptionally there is spontaneous recovery. Death may occur during the attack, with symptoms of cardiac paralysis. In other cases the patient falls into a coma, the urine decreases progressively in amount, and death follows a period of anuria. According to F. Plehn, thrombosis of the heart is the cause of death in the greater number of cases. Death is due in a large percentage of cases to acute nephritis and uremia.

Urine.—In the urine we find the characteristic data, from which the disease is named. In mild cases the urine is not diminished in amount, and may even be increased. In severe cases, however, the patient passes with considerable pain and tenesmus a small quantity of urine, 50 to 100 c.c., or even less, in 24 hours. Sometimes after a few hours of onset the renal function ceases entirely. The color of the urine varies from claret-red to almost black. Reaction is generally acid. Albumin is present in varying quantities, generally considerable in amount, from 0.25 to 0.5 per cent. by weight or more.

Spectroscopically, the bands of methemoglobin or of oxyhemoglobin are found. Marchiafava and Bignami report the occurrence of the methemoglobin in the greater percentage of cases. The sediment is usually considerable in amount, varying in color from claret-red to dark-brown. Microscopically it is made up in the greater part of a brownish or reddish yellow, granular detritus. There occurs an occasional changed red blood cell. There are but few red blood cells present and these may be entirely absent. In addition to the mass of brownish granular material there are hyaline and granular casts, usually stained brown, renal cells, swollen and degenerated, and leucocytes.

In cases which recover, the albumin, in small amounts, persists for some days after the urine has cleared. In mild cases the hemoglobin may almost if not entirely disappear in a few hours after the beginning of the attack, and the urine resume its normal appearance.

Treatment.—Quinin has been given in hemoglobinuric fever on the supposition that the hemoglobinuria and fever are due to the action of the malarial parasites. Some writers, as Stendal, Kucher and others, advocate the treatment of this condition with large doses of quinin; others, among them Tomaselli, the Plehn brothers and Koch, attribute the fatal issue or the grave course in many hemoglobinuric attacks to the obstinacy of physicians in the tropics in giving quinin (Marchiafava and Bignami). These latter writers hold that the conduct of physicians in the matter of the administration of quinin should be regulated by the result of the blood examination. They say: "In cases where active malarial parasites are present in the blood during the attack, and where the hemoglobinuria comes after a succession of malarial attacks, then quinin should be given." These writers state further that "hemoglobinurias without quinin are much milder than those treated with quinin." Manson regards quinin, in this condition (blackwater fever), as comparatively useless in all cases, and that it exerts no effect in cutting short the duration of the attack. Plehn, who has had an extensive experience with blackwater fever in the Cameroons, believes that quinin in this condition tends to aggravate the hemolysis. He deprecates altogether the use of quinin during a hemoglobinuric attack. He suspends the administration of the drug during the attack, resuming it subsequently after the attack has subsided. Plehn's results are far more favorable than are those of the physicians who give heroic doses of quinin.

The treatment of hemoglobinuric fever (aside from quinin), resolves itself into the treatment of symptoms. In severe cases where vomiting is persistent, resort may be had to nutrient enemata, and to intravenous injections of normal salt solution. In uremic cases, administer diaphoretics, chloral hydrate, etc. Often cracked ice and small amounts of brandy or champagne will be retained when it is impossible to give anything else by mouth. Inhalations of chloroform are advised by Marchiafava, and some French writers, where there is agitation with cyanosis and dyspnea. Stimulants, inhalations of oxygen and the administration of opium and chloral hydrate are recommended by various writers for the same symptoms. Among other drugs advocated by various men are ergotin, methylene blue, tannic acid, sodium salicylate and arsenic.

Manson suggests if the malarial parasites are present in the blood the use of moderate doses of quinin hypodermically (5 grs. every 3 or 4 hours), preceded by a large dose of calomel. When the urine becomes much diminished in amount and tends to be suppressed, diuretics must not be given, with the idea of stimulating the kidneys, but hot fomentations to loins and plenty of bland diluents administered, and the patient put on a strict milk diet, which should be continued until all albumin has disappeared from the urine. He regards these as the only rational and safe methods of treating blackwater fever. He further states that antipyretics, as antipyrin and phenacetin, are dangerous.

Koch, as well as Plehn and others, believe that quinin is positively harmful in hemoglobinuric fever, and advises strongly against its use. Plehn, Marchiafava and Bignami, and other observers, state that the hemoglobinuric paroxysm often subsides spontaneously without treatment.

Résumé.—We have in our two cases the classic picture of blackwater fever as described by various writers. In both cases there was the history of previous attacks of fever with chills. Each case began suddenly, without any prodromata, with a chill followed closely with hemoglobinuria and marked icterus. We have the characteristic symptoms and the characteristic urine.

Case 1 had "chills and fever" ten months previously; he had been in these islands two years and seven months when his attack of hemoglobinuria came on. Case 2 arrived in the Philippines two years and three months ago. He had "chills and fever" one year ago.

The question is, whether the previous attacks of chills and fever in these cases were attacks of malarial fever. In the last attack (i. e., the chill and fever accompanying the hemoglobinuria), in each case we have no evidence, either during life or at postmortem, that the malarial parasites were responsible. During life repeated blood examinations were negative, and at postmortem the evidence was negative, i. e., there was neither pigmentation of organs, nor parasites in cover slips from spleen, liver and kidneys.

It might be said by some that the chills and fever in our cases, as well as the hemoglobinuria, were due to the malarial "poison"; that these are cases of "post-malarial" hemoglobinuria. This is a very unsatisfactory explanation.

In many tropical districts three-fourths of the white residents would have had malarial fever at some time during a two or more years' stay. How would it sound to call a dysentery in such individual a post-malarial diarrhea, or to call a typhoid diarrhea by the same name? Where malarial fever is so common as in the tropics, nearly all other diseases could, in a sense, be called post-malarial.

It may be possible that malarial fever does leave a poison, or to speak more clearly, may alter conditions in the body and body fluids which predisposes to, or at times brings on an attack of blackwater fever.

But if blackwater fever is a malarial or post-malarial affection, why is it that only in a very small percentage of cases of estivo-autumnal malarial fever does it occur? In the autumn of 1898, while on duty at the General Hospital at Fort Meyer, Va., I observed some 300 men of the 5th Army Corps, returned from Santiago. Many of these men had estivo-autumnal malarial fever, among them many very severe cases, but no case of blackwater fever occurred. In the Philippines the writer has seen many cases of estivo-autumnal fever among the patients in the military hospitals, and never met with a case of blackwater fever before.

Many hemoglobinurias without doubt occur during malarial paroxysms, and the malarial parasites of the estivo-autumnal type seem to be the exciting cause in such cases, but there is a large class of hemoglobinurias, of which our two cases are types, occurring in the tropics which appear to have no relation to malarial fever.

To Major R. H. Zauner, Surgeon U. S. Volunteers, I am indebted for the report of a case of hemoglobinuria following on an attack of dengue: This patient, a soldier on duty in northern Luzon, had a typical attack of dengue, with rash and all the characteristic symptoms. He was in the hospital for about ten days, during which time blood examinations were negative for malarial parasites. The man returned to duty in ten days. He performed duty for three days, when he returned to the hospital with moderate icterus and passing dark-red, smoky urine. No parasites were found in the blood at this time. He was given small doses of quinin and got well after a moderately severe attack. Some weeks later malarial parasites (estivo-autumnal) were found in his blood. Quinin was given in moderate dosage and the patient made a good recovery from his malarial attack, without hemoglobinuria or other noteworthy symptoms.

This case may have been a malarial hemoglobinuria. The parasites may have been present in, or before the hemoglobinuric attack, in small numbers in the peripheral circulation and have escaped detection. If so it is curious why hemoglobinuria should have accompanied the first attack and not the second, which was undoubtedly malarial and which followed the first in the course of a few weeks.

The etiology of blackwater fever is certainly obscure. We know that this fever originates most commonly, if not always in "malarious" districts, where the estivo-autumnal type is common.

On the other hand in many similar districts blackwater fever is unknown. Then again, it may occur during the course of one malarial attack in an individual, and be absent in preceding and subsequent malarial attacks in the same individual. The evidence is very strong that some other factor or influence besides that of the action of the malarial parasites is necessary to produce blackwater fever.

Diagnosis.—Yellow fever is probably the only disease presenting symptoms similar enough to those of blackwater fever which give any great difficulties in differentiating. The invasion of each disease is marked by somewhat similar symptoms, but after a few hours there is usually not much difficulty in making a correct diagnosis. (This all depends, however, on whether we see the case from the beginning of the disease through to the end. Given a case of either disease several days after commencement, it might be difficult for the time to make a diagnosis.) As noted above, in hemoglobinuric fever the icterus and hemoglobinuria comes on practically coincidentally, in a very short time following the initial chill.

Albuminuria always accompanies the hemoglobinuria, consequently albuminuria is one of the earliest symptoms. It appears on the first day, at the very start of the disease.

In yellow fever, on the contrary, albuminuria does not occur usually until the third day (from the second to the fourth day). The jaundice of yellow fever is not intense at the beginning, and increases as a rule gradually, especially with the secondary rise of temperature. While hematuria, and even hemoglobinuria may occur in the course of yellow fever, still this is not so very common, especially the latter, and if it does occur it is one of the later manifestations.

In yellow fever we have a most characteristic symptom described by Faget of New Orleans (Osler): "The slowing of the pulse with a steady or even a rising temperature."

The liver and spleen in blackwater fever are appreciably enlarged, while in yellow fever there is usually no noticeable enlargement of these organs. The vomit in blackwater fever consists of a greenish, bile-stained mucus, which appears early in the attack, instead of the

"coffee-ground" vomit of yellow fever. Then, too, hemoglobinuric fever is endemic and not epidemic.

It can readily been seen that under some circumstances, for instance in the field where examinations of the blood and urine can not be made, that for a time at least it might be difficult to make a diagnosis. Still, even here after a few days the difficulty would be cleared away.

Of course, the finding of active malarial parasites in the blood during the paroxysma would at once show that the attack was one of malarial hemoglobinuria.

Pathologically, postmortem, in yellow fever we have an intense fatty degeneration of the liver, and the mucous membrane of the stomach is markedly injected and contains usually blackish, changed blood. The liver in yellow fever is pale in color and friable; the spleen is soft but not much enlarged, whereas in blackwater fever there is marked enlargement of spleen and liver, and these organs are usually hyperemic.

In one of our cases, however, the liver was pale-yellow in color, not much enlarged and gave the same appearance, both macroscopically and microscopically, as yellow fever.

It is worthy of special note that the Stegomyia fasciata, the mosquito shown by Major-Surgeon Reed, Act. Asst. Surgeon Carroll, and others, to be the common, if not the only disseminating agent of yellow fever, occurs in large numbers in Manila and vicinity, and in many districts here in the Philippines. The writer has caught many specimens himself in the Army Laboratory, at his quarters on Calle Nozeleda, Manila, and in Hospital No. 3. Many specimens of this mosquito are found in the collections sent in to the laboratory for identification by the army surgeons from posts throughout the islands. Fortunately yellow fever has never been known in the Orient.

It is possible with out fast transports and merchant ships to bring infected mosquitoes or infected men to these islands.

The Stegomyia fasciata, as shown recently by Reed, will not survive longer than five days without water, and even with water under favorable conditions usually dies quickly. It must be born in mind, however, that the mosquito is capable, as shown by Reed's experiments of transmitting the disease 12 days after the insect has bitten a case of yellow fever, and that it takes much less time for steamships to make the voyage (even from New York) to the Philippines.

Treatment of Cases.—Case 1 had taken, according to his own statement, 24 grains of quinin in the course of the two days prior to his entrance into the hospital. At the time of his admission to the First Reserve Hospital, on November 9, he was passing small amounts of "blackberry" colored urine. He was given at once (one and one-half hours after entrance), quinin hydrochlor. grains 10 (.65 gms.) hypodermically. This same dose was repeated three times, at intervals of one hour, so that 40 grains (2.65 gms.) were given in three hours hypodermically. He was perfectly rational before treatment was begun; he was weak and depressed but his mind was clear and he answered all the questions put to him intelligently.

Soon after the first injection of quinin he became delirious. The man remained in this condition until his death, which occurred 25 hours after his entrance to the hospital—a little less than 24 hours after the first dose of quinin was administered. There was practically suppression of urine during this 24 hours; aside from the small amount passed involuntary drippings only 4 c.c. of urine was obtained by catheter.

Case 2 had no quinin before his entrance to the hospital, and none in the hospital. He came in with the same symptoms as Case 1. His scleræ were markedly jaundiced. He passed his urine freely; there was no tendency toward suppression at first. The amount was little less than normal on the first day. The quantity of urine gradually decreased in amount. The man retained his consciousness for the first three days. He died in uremic coma on the fourth day. Autopsy showed that this man had an "old," subacute (chronic diffuse) nephritis, on which an acute process was implanted. From the course of this case it would seem that if it were not for chronic nephritis he might have recovered from the hemoglobinuric attack.

Summary.—Here we have one case of blackwater fever treated vigorously with quinin, and the other symptomatically without quinin. The first case went from bad to worse promptly after the first administration of quinin, the man dying in 24 hours with practically suppression of urine.

Case 2 gave promise to weather the attack, but his damaged kidneys were too much of a handicap to overcome.

Quinin in the first case was distinctly harmful. From this limited experience it would be unwise for us to draw any extreme or sweeping conclusions. Our cases are additional evidence as to the harmful effects of quinin, and go toward confirming the views of such investigators as Plehn, Koch and others.

CONCLUSIONS.

The part played by quinin in such cases is obscure. Whether it acts as a direct irritant on the kidneys, or on the blood itself is not clear.

Quinin acts differently in the same individual in different malarial attacks. Sometimes it apparently produces hemoglobinuria, then, in a subsequent attack, has no such action (Marchiafava). The whole question of blackwater fever needs much more investigation. At present we can only theorize as to its causation.

The relation between hemoglobinuric fever and the malarial fevers is not clear.

Quinin during a hemoglobinuric paroxysm appears to be distinctly harmful.

COMPARATIVE VALUES OF CYCLOPLEGICS.

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Much that we accept as settled fact in medicine has been received from so-called authorities, and we daily put up with the annoyances and inconveniences of imperfect means or instruments for lack of the time or disposition to seek out better. Since the time of Donders, atropin has been the chief reliance of ophthalmologists as a cycloplegic, but its obvious failure as an ideal substance for this use has led many investigators to look afield for a better.

As a result we now have atropin, homatropin, scopolamin, duboisin, hyoscyamin and hyoscin contending for the chief place, while cocain, ephedrin, euphthalmin, etc., divide the honors as mydriatics.

An ideal cycloplegic should possess the following characteristics: 1. First of all, it must be safe. 2. It must be sure. 3. Its effects must be of short duration. I am assuming that we are using the drug for refraction pur-

poses only. 4. It must be prompt of action. 5. Its exhibition must consume the least possible time. 6. It must be inexpensive. 7. Its solutions must keep well.

Atropin, discovered in 1833 by Mein, and independently by Geiger and Hesse, was scientifically tested by Donders, and following his lead its use became general. It possesses but three of the qualities of an ideal cycloplegic. It is cheap, keeps fairly well in solution, and is sure. The latter quality is so well marked that it has become the standard for comparison for all its rivals.

It lamentably fails in the matter of safety, for we all know and have seen the bad results which may follow its exhibition, such as local and systemic irritation or symptoms of actual poisoning. We are especially warned of the danger of glaucoma and so marked is the tendency to the latter that we are practically debarred from its use past the age of 45 years. Neither are the effects of short duration, as a single drop of 1 per cent. solution may cause accommodative disability to last fifteen days. It is slow to act, requiring one or two days' use to bring out all latent spasm.

Homatropin, derived from atropin by the action of acids, sprung into sudden popularity because it was said to be safe and its effects passed away so rapidly. Although safer than atropin it is not free from danger. Gifford[1] reports a case of glaucoma with retinal hemorrhage from its use, and quotes a case from Sachs and another from Shears of the same accident.

On the question of surety there seems a great diversity of opinion. Coleman[2] quotes Oliver, Chisholm, Savage, Jackson, Randall, Starkey, Risley, Wood and Ayers as favorable or enthusiastic advocates of its reliability, while Stewart, Holt, Cotton, Risley, Noyes, Webster and Agnew insist equally strongly on its unreliability. One case is known to me personally in which four discs of homatropin and cocain exhibited during two hours left the patient with ability to read No. 1 Snellen. She subsequently showed hyperopia 1.50 D. under the use of hyoscin hydrobromate.

For the matter of ease of exhibition little need be said, as efficient use of solutions requires a drop every five minutes for an hour, which is a severe tax on the time of a busy man.

In an article on "Chemistry of the Atropin Alkaloids," Pinner[3] claims that in the several solonaceæ, atropia, hyoscyamus, datura, mandragora and anisodus, there are two alkaloidal bases, namely hyoscyamin, which by the action of alkalies is converted into atropin or inactive atroscin, and second, hyoscin identical with scopolamin. Duboisin, he says, is a mixture of hyoscin, atropin and unknown alkaloids.

Duboisin, doubtless from its mixed composition and uncertain proportions, has in the hands of several observers proved too violent and erratic to be recommended for use. It also violates the third requirement, short action, as its effects last from four to eight days.

According to Pinner[4] scopolamin is identical with hyoscin. Schmidt and Merck also claim identity. In the few cases I have so far tested the two simultaneously, I have the impression that scopolamin is feebler than hyoscin. I have certainly found it a trifle slower in action, and after the accommodation was suspended by hyoscin in one eye it still showed action in the fellow eye under the same strength of scopolamin.

There is also confusion between hyoscin and hyoscyamin, some writers using the two terms interchangeably. Merck and Schmidt claim identity between them. They are isomers, the only difference chemically being that the double salt of hyoscin and gold is less soluble than the similar salt with hyoscyamin.

An unfortunate prejudice has arisen against hyoscin and hyoscyamin on the ground of dangerous action, due, no doubt, to the use of too strong solutions, but the same might be urged against any drug of their class.

To test the relative action of atropin and hyoscin, instillations were made of 1 per cent. atropin sulphate in one eye and hyoscin hydrobromate .5 per cent. in the other simultaneously. This was done with patients who by skiascopy and subjective tests were found to have eyes approximately alike in refraction and presumably in muscular strength also.

Similar tests were made with hyoscin and scopolamin, but at present the number is too small to have scientific value except as an indication. My conclusions from these cases I have already stated.

A small pointed dropper was used and a single drop, about one-half minim, placed inside the lower lid. When possible the lid was kept on the stretch for a few seconds to allow for local absorption, but quite as often this was not practicable, and I was never able to detect any difference in the result when this was omitted. From fifty cases tested in this way the following observations and averages are drawn:

In children and light-complexioned persons, absorption goes on more rapidly; in adults, especially of darker complexion, more slowly. Mydriasis begins in from six to twelve minutes, an average of nine, for hyoscin, while atropin averaged eight minutes later.

Mydriasis was complete for hyoscin in fifteen to eighteen minutes, for atropin an average of twenty-five. Difficulty in accommodating for hyoscin commenced in fifteen to eighteen minutes, and there was complete cycloplegia in thirty to forty-eight minutes.

Difficult accommodation began under atropin in twenty-nine to thirty-five minutes, and there was complete cycloplegia only at the end of several hours.

Returning accommodation was noticed with hyoscin in six to twelve hours, complete in forty-eight to sixty hours, while with atropin there was seldom lessening of paralysis in less than four to six days, and complete return of accommodation was often delayed fifteen days.

For the sake of convenience in some cases it has been found necessary to drop hyoscin into the eyes in the afternoon and wait until the following morning to refract. In persons with very strong ciliary muscles and in the young, it is common to find slight evidences of accommodative effort when this has been done, rendering a second instillation necessary; otherwise a single drop suffices to secure complete cycloplegia.

The results of the use of hyoscin hydrobromate for the past fifteen years, and for eight or ten almost to the exclusion of atropin, has given me more and more confidence in it. My records show between 2500 and 3000 cases in which it was used for refracting and I have yet to see a serious bad result from its employment.

In children and light-complexioned persons, when actively absorbed, it occasionally produces flushing of the face, dryness of the fauces, a feeling of fulness in the head and some dizziness on attempting to walk, the last due, I believe, to the sudden suspension of accommodation. I formerly used 1 per cent. solution, but now the .5 per cent., with the result that the above symptoms seldom appear. There is neither pain, reddening of conjunctiva, nor congestion of choroid as sometimes follows

1. Ophthalmic Record, July, 1900.
2. Coleman: Annals of Ophthal., January, 1893.
3. Pinner: Centralblatt f. Prakt. Augenh., January, 1898.
4. Pinner: Loc. cit.

some of the other cycloplegics, although some patients with accommodative spasm occasionally have headache until the accommodation is totally suspended. There is rarely some drowsiness manifested also.

I am unable to find any record of cases of glaucoma following its use, and if for any reason it became necessary to use a cycloplegic in an eye liable to glaucoma, I should consider it the safest one to use.

Hyoscin therefore fulfills the first requisite of safety. At first I was accustomed to use atropin in all cases of doubt as to whether hyoscin had brought out as much latent hyperopia as from my other tests I had estimated to exist; also in all patients returning dissatisfied with glasses I had given them, or those having persisting spasm after being refracted; and in fact, in all cases that could possibly be due to incomplete cycloplegia. In no instance could I find any greater variation in the findings than want of mental acuteness in the patient, or possibly too great haste in refracting would account for, the errors favoring each about alike.

In a word, then, I have never found hyoscin to fail in showing every particle of refractive error that could be discovered with any other cycloplegic. Hyoscin, therefore, fulfills the second requirement: It is sure.

Examination of the accompanying table shows that with the possible exception of homatropin, its effects are the shortest in duration; that it is the most prompt in its action; that, as it requires only one drop, its exhibition consumes the least possible time, and for the same reason its use is inexpensive.

Lastly, its solutions have remarkable keeping qualities, as after almost three years one lot contained only a minute amount of vegetation, which was filtered out, and the filtrate used with no difference perceptible in action from that of the fresh solutions. The drug seems, indeed, to inhibit the growth of micro-organisms.

In tests of this nature great accuracy is not possible, such as the exact minute when mydriasis begins, nor indeed, is it necessary to know the particular hour when returning accommodation first shows itself, but when variations in activity are between testing an hour after exhibiting a remedy and waiting a day and a half to do so, or when the question of disability for a busy patient is between two days and a possible fifteen, then such tests possess sufficient accuracy to enable us to select the best out of the candidates for cycloplegic honors, namely hyoscin hydrobromate.

	Atropin sulphate.	Homatropin hydrobromate.	Hyoscin hydrobromate.	Scopolamin hydrobromate.
Average number of instillations.	1	6 to 10	1	1
Average strength	1 per cent.	1 per cent	.5 per cent.	.5 per cent.
Beginning mydriasis	14 to 20 min	15 to 20 min	6 to 12 min.	8 to 12 min.
Complete mydriasis	25 " 35 "	40 "	15 " 18 "	15 " 20 "
Beginning cycloplegia	29 " 35 "	30 " 50 "	15 " 20 "	15 " 20 "
Complete cycloplegia	36 hrs.	1 " 2 hrs.	30 " 48 "	45 " 60 "
Beginning return of accommodation	3 " 6 dys.		6 " 12 hrs.	28 " 36 hrs.
Complete return of accommodation	8 " 15 "	12 to 48 hrs.	48 " 60 "	90 "

Fatal Effects of Chloroform Following Influenza.—William Caldwell draws attention to the importance of obtaining a history of recent influenza before the administration of anesthetics, especially chloroform; there have been many deaths from chloroform administration, especially during influenza epidemics; very suspicious cases have occurred which were clearly explained by the depressed condition of the nervous system and of the heart.—*Dental World.*

THE SURGICAL TREATMENT OF ASCITES DUE TO CIRRHOSIS OF THE LIVER.*

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The surgical treatment of the ascites of cirrhosis of the liver is based upon the assumption that the ascites is due to an abnormal increase in the blood pressure in the portal radicles, which in turn is produced by the peculiar changes in the liver, causing an obstruction to the passage of the blood of the portal system to that of the general system. The portal system at one time was thought to be a closed circulation, but it has been known now for some time that a number of small anastomoses exist between some of the radicles of the portal system and those of the vena cava which permit a certain amount of the portal blood to reach the general circulation without passing through the liver. Under normal conditions the amount of portal blood thus reaching the vena cava is comparatively small, but in the presence of an obstruction to the flow of blood through the liver these anastomoses become considerably enlarged and the collateral circulation thus materially increased. This collateral circulation is also still further increased by the adhesions which often spontaneously develop between certain of the visceral and parietal surfaces. In this manner the blood pressure in the portal radicles, even in the presence of considerable obstruction to the circulation through the liver, is maintained below the point at which transudation takes place. When the obstruction to the circulation in the liver reaches a certain degree, the collateral circulation is no longer able to maintain an equilibrium in the blood pressure in the portal radicles, and the pressure thus rises to a point at which transudation takes place and ascites develops. This may be called the mechanical theory of the cause of ascites in cirrhosis of the liver. That it is not the only cause will be shown later.

Based upon this mechanical theory and in an endeavor to imitate Nature's method it occurred independently to Talma in Germany, and Morrison and Drummond in England, to increase the collateral circulation, and thus decrease the blood pressure in the portal system, by artificially inducing adhesions between certain of the abdominal viscera, namely, the liver and spleen, and the omentum and the abdominal parietes. Considerable experimentation has been done in this connection, which is of much interest both from a surgical and physiological point of view, and which it would be necessary to consider in an exhaustive treatment of this subject; but owing to the limited time at our disposal it will be necessary to pass over these points and proceed at once to the practical side of the question, and consider what has actually been accomplished thus far by the surgical treatment of this condition.

Let us, then, direct our attention to the clinical results. The first 22 cases have been collected from the literature, and arranged in tabular form by Packard and Le Conte.[1] These cases will not be reproduced here, and the reader is referred to their article for the details of those cases.

Since the appearance of Packard and Le Conte's article I have been able to find in the literature some additional cases, and can add four unpublished cases, two of which were operated on by myself, and one each by my colleagues, Drs. Lee and Oswald, at the Alexian

* Read before the Chicago Medical Society, February, 1902.

1. Am. Journ. of the Med. Sciences, 1901, vol. cxxi, p. 251.

Brothers' Hospital. Brief abstracts of these cases follow. They are not arranged in chronologic order.

Commandini and Salvolini[2] report two cases, the details of which are not at hand. One of the cases died on the fourteenth day, while in the other no improvement followed, as rapid recurrence of the ascites occurred.

Schiassi[3] reports three cases:

CASE 1.—Man, age not given, with pericardial adhesions producing bi-veinous congestion of liver with cirrhosis. Ascites was marked. After operation ascites returned, but gradually disappeared as collateral circulation became established. Ascites had not returned in two years. Amelioration of symptoms considerable.

CASE 2.—Man, aged 23, was affected since age of 13 with "cirrhosis nodulaire infecticuse" accompanied with ascites, which returned after tapping. S. thinks one of the nodules of sclerosis compressed one of the larger ramifications of the portal vein, or perhaps the trunk of the vein itself after entering the liver was the seat of thrombosis. After operation ascites reformed rapidly until from the fifth to the tenth day, when the fluid leaked through the operation wound. Wound, however, cicatrized and the patient increased in weight from 54 to 66 kilograms. Some ascites remained present.

CASE 3.—Female, age not given. Cirrhosis probably of malarial origin with abundant ascites: Result of operation was not so good. S. thinks because omentum was not sutured between peritoneum and muscles, and because cirrhosis was too far advanced. Some amelioration of condition was noticed. Patient able to carry on occupation. Time of observation not stated.

Grissow[4] reports the following:

Female, aged 49. In May, 1899, acute ascites developed. Paracentesis abdominis was performed in June, July, and August 3. August 25, celiotomy. Nothing abnormal was found; no tuberculosis; no carcinomatosis. Abdomen was closed without doing anything. Paracentesis was done again in September, October, and twice in November. Edema of the extremities developed, the urine became scanty and the general condition bad. November 28, abdomen again opened—median incision to peritoneum, which was incised transversely and the omentum drawn through and sutured—wound closed. Peritoneum curetted to favor adhesions to small intestine. Ten days after operation abdomen began to refill, but under diuresis the fluid slowly decreased. Seven weeks after operation when reported patient was still suffering. No diagnosis was made and nothing abnormal could be felt about the liver. Grissow suggested the possibility of thrombosis of the portal vein.

Ssokolow[5] reports a case:

Man, aged 37, had ascites for three years. Cause was not stated. Twelve liters of fluid removed by puncture. Two months later 17½ liters. Four days later celiotomy—omentofixation; one month after operation 10 liters of fluid were removed by puncture. At the end of four months ascites had disappeared. No symptoms on the part of the nervous system

Brown[6] reports the following case:

Man, aged 43, had during past few years increasing symptoms of cirrhosis with ascites; required repeated tapping. General condition was rapidly deteriorating. September 2, 1899, operation was made by Dr. Tuttle; median incision six inches long. Omentum was thickened, contracted and lumpy, and adherent about umbilicus to parietal peritoneum. Veins were enlarged and distended. Round ligament was thickened and hard. Liver was small, hard, hobnailed. Spleen was twice the normal size. Surface of liver, spleen and peritoneum was rubbed vigorously with dry gauze. Omentum was sutured with catgut. Upper wound was closed. Glass drain was passed through small incision lower down into pelvis. Drainage was profuse. After two weeks drainage nearly ceased. On 23d day glass drain was changed for smaller one; on 28th day removed entirely. November 1 both wounds were healed. January 5, 1900, four months after operation, patient felt well.

Scherwinski[7] had the following case:

Woman, aged 38 years, had been sick for nine months. She was not a drinker; father was an alcoholic. Omentofixation. Four months later patient felt well, except weakness continued Nothing was said about ascites, nor about the condition of the liver.

Benissowitsch[8] reports two cases:

CASE 1.—Young woman, aged 22 years, drank for seven years. On account of a diagnosis of tubercular peritonitis she was twice laparotomized without benefit. Liver was enlarged, spleen small. Third operation after Talma. Two months later she was tapped, "whereupon patient felt very well."

CASE 2.—Man, aged 56 years, was drinker for thirty years; tapped twice, then operation after Talma. Patient felt well for eleven days, when heart weakness appeared and in three days more he died; no autopsy.

Jelks[9] reports one case:

Man, aged 56 years, when first seen, Sept. 1, 1900, had abdomen greatly distended with fluid. Treatment was for a few weeks without benefit; tapped and three gallons of fluid withdrawn. Next day, Dec. 20, 1900, operation was made. Incision four inches long midline between umbilicus and ensiform cartilage. Peritoneum was rubbed with gauze for a distance of four inches around incision. Same surface curetted with sharp curette. Surface of liver also was rubbed. Omentum was stitched to parietal peritoneum. Incision was closed without drainage; primary union. No history later than eight days after the operation.

Roberts[10] reports two cases:

CASE 1.—Man, aged 49 years, of temperate habits, had ascites three months standing, with jaundice. Operation was Dec. 4, 1900. Omentum was fixed to parietal peritoneum by four chromic catgut sutures, which passed through the abdominal wall. One month later there was less ascites but more dropsy. Death occurred in six weeks. A nodule taken from the omentum and examined resembled spindle-cell sarcoma.

CASE 2.—Man, aged 54 years, heavy drinker, had ascites for eight months. He was tapped eight times; emaciated and jaundiced; he had edema in both feet. Urine contained albumin and hyaline casts. November 26, 1900, he was tapped—six pints. Eight days later omentofixation was done. Two-inch incision below umbilicus was made, but omentum could not be reached. Second incision was made above umbilicus; omentum was found, pulled down and fixed with two chromic catgut stitches each side of incision, which passed through entire thickness of abdominal wall. He died next day in uremic coma. At autopsy it was found that three of the stitches had pulled out.

McArthur[11] reports one case:

Man, age not stated, had been hard drinker for years, and developed the characteristic hobnailed liver of the alcoholic, and was admitted to hospital Oct. 23, 1900, with abdominal effusion of large amount. He was tapped and 14 quarts of fluid removed. In the course of eight weeks he was tapped three times. Operation was made Dec. 3, 1900. Peritoneum was rubbed with dry gauze. Omentum was stitched to parietal peritoneum with four fine-silk sutures each side of incision. Wound healed without drainage. On the ninth day ascites was so marked that it was thought it would be necessary to tap, but on the tenth day the tension had diminished some, and by the end of three weeks patient had lost eleven inches at the greatest circumference. Peptones were found in patient's urine after operation, which were not there before. Patient dis-

2. Gaz. Deg. Ospedali e delle Clin., Nos. 147 and 150; Ref. Deutsch. Med. Woch., 1901, Lit. Beilage No. 1.
3. La Sem. Med., 1901, No. 19.
4. Deutsch. Med. Woch., 1900, Ver. Beilage, No. 26.
5. West. Chir., 1900, July 1, Ref. Centralb. f. Chir. 1901, No. 2.
6. Med. and Surg. Reports of the Presbyterian Hospital, New York, January, 1900.
7. Ref. Centralb. f. Chir., 1900, No. 35.
8. Wratsch, 1901, Nos. 6 and 7, Ref. Centralb. f. Chir., 1901, p. 792.
9. Med. Record, 1901, p. 454.
10. Phila. Med. Jour., 1901, vol. vii, p. 163.
11. Annals of Surg., 1901, vol. xxxiii, p. 653.

charged from hospital feeling well. (Personal communication, January, 1902: Dr. McA. says patient is still feeling very well and there has been no recurrence of the ascites.)

Ito and Omi[12] report five cases:

CASE 1.—Man, aged 26 years, not a drinker, had no syphilis. Six years before, he acquired malaria in Formosa. This persistent and severe case entered hospital June 6, 1900; somewhat jaundiced. Heart and lungs were normal; abdomen was somewhat distended. Upper border of liver at fifth rib in mammillary line, lower border normal. Spleen was considerably enlarged. No ascites was demonstrable. Repeated attacks of fever occurred, but no plasmodia could be found in the blood. In July ascites was present, which increased up to October 8. At operation, liver was found nodular and somewhat hard; spleen was enlarged. Adhesions had formed between the right lobe of the liver and the parietal peritoneum near suspensory ligament, also between omentum and abdominal wall midway between ensiform cartilage and umbilicus. No other changes were found in peritoneum. The surface of the liver and spleen and the opposite-lying peritoneum were rubbed with dry gauze, the parietal peritoneum about the incision scraped with a sharp spoon, and the omentum fixed thereto with sutures. Wound was closed; no drainage. Ascites returned and attacks of fever continued at intervals until Jan. 19, 1901, when he died.

CASE 2.—Boy, 13 years old, with no hereditary trouble; had measles and diphtheria in childhood. For three years he had complained of palpitation and dyspnea on exertion, and for a year of a sense of fulness in the epigastric region. Night-sweats and gradual wasting occurred. He entered hospital Oct. 10, 1900, poorly nourished and anemic, with lymph glands of neck enlarged. Heart was normal. Pulmonary expiration prolonged over apex on right side. Liver extended from fifth rib, mammillary line to 1 cm. below costal arch. Spleen could not be felt. No ascites was demonstrable. November 1, operation was done, same as in Case 1. Liver was slightly nodular and felt firm. Spleen was slightly enlarged. Small amount of ascites was present. November 16, he left hospital feeling better. One year later he was feeling well and ascites had not returned.

CASE 3.—Man, 53 years of age, had syphilis at 35, and malaria 6 years ago. He was a hard drinker of *sake*, an alcoholic drink made from rice. He entered hospital Nov. 7, 1900, with considerable ascites. Neither liver nor spleen could be felt. He had not been feeling well for about 3 years, but was worse in last few months. November 9 he was tapped and 5700 c.c. fluid withdrawn. November 10, operation was done under Schleich's local anesthesia with eucain B. Liver was small, hard and nodular. Spleen was slightly enlarged. Operation was same as in other cases, except a gauze drain was left in the lower part of the incision. Drain was removed next day, as the excessive flow of fluid disturbed patient. He gradually sank and died on the fifth day.

CASE 4.—Man, aged 42, acquired syphilis at age of 23 and was badly affected by it; entered hospital Jan. 20, 1901. He was poorly nourished, greatly emaciated, jaundiced; all lymph glands were enlarged. He had marked ascites. He was tapped and 6000 c.c. fluid withdrawn. February 5, operation was made under chloroform. Liver was atrophied, hard, granular. Spleen was enlarged, hyperemic. Operation was similar to previous ones. February 18, there was tapped 4500 c.c. February 27, abdomen again was much enlarged and jaundice increased, with edema of extremities. March 1, there was tapped 5600 c.c. He was tapped seven times up to June 14, and on June 20 died.

CASE 5.—Man, aged 53 years, had syphilis at 23. About one year ago began to have edema of extremities, which increased until November; then it disappeared and abdomen became enlarged. From this time on abdomen was tapped twice a month. He entered hospital March 25, 1901. March 29, operation was made under chloroform and ether narcosis. Liver was a little enlarged and contained large, unequal nodules. Whitish scar-like depressions were present between the nodules. Spleen hyperemic with uneven surface. A part of the omentum was adherent to the upper surface of the left lobe of the liver. Operation was same as before. Death occurred on the fourth day, with subnormal temperature.

12. Deutsch. Zeitsch. f. Chir., 1901, Band 62, S. 141.

To these cases from the literature I can add the following two cases by permission of the operators. The operator of Case 1 was Dr. J. W. Oswald, at the Alexian Brothers' Hospital, Chicago.

CASE 1.—Charles H., aged 37, married, German and a hard drinker. Venereal history was denied. December, 1900, he had severe cough for some time. In April, 1901, he developed an umbilical hernia. About Oct. 1, 1901, he began to feel weak and feet swelled. He has occasionally passed a little blood at stool. Skin has recently become yellowish.

Conjunctivæ were distinctly yellow. Left pupil was not perfectly round and did not react properly to light. Harsh respiratory sounds and râles were diffusely scattered over back. Heart dulness existed above second interspace. Apex beat was in nipple line in fourth interspace. There was apical systolic murmur. Diffuse heaving pulsations of heart were visible. Veins of chest, abdomen and right leg were enlarged. Tongue was normal. Breath was of sweetish odor. Abdomen was distended. Physical findings of ascites. Liver dulness was not distinct. Umbilical hernia and hernia through left rectus two inches above umbilicus—both were easily reducible. There were external hemorrhoids. Uranalysis was negative. Operation was done Nov. 26, 1901, under ether. Incision five inches in length was made so as to include both herniæ. Hernia sacs were dissected out. Omentum was sutured with catgut to parietal peritoneum, which had been rubbed with sponges and scraped with a curette. Wound was closed without drainage. Primary union took place. December 30, 1901, three gallons of fluid were tapped. After this his strength failed quite rapidly, and he died Jan. 7, 1902.

Autopsy was made Jan. 7, 1902, by Dr. Tower.

Body generally emaciated, abdomen greatly distended. Veins marked on chest and abdomen. Large scar on abdomen from ensiform toward umbilicus. There were no pleural adhesions on the left side; slight pleural adhesions generally on the right side. Lungs were slightly congested. Pericardium and heart were negative; valves normal.

Abdomen was distended with about three gallons of clear yellow serous fluid. Intestines were very pale. Appendix was negative; extends upward and outward and backward behind head of colon. Epigastric, mammary, mesenteric vessels and vessels in coronary ligament and on the under surface of the diaphragm were very much enlarged. Strong adhesions containing a great many small blood vessels bind the abdominal wall, omentum, diaphragm, liver, stomach, colon (transverse) and spleen in one mass.

Liver is very small, contracted, irregular and has a rough surface. It is covered with a whitish-yellow deposit of fibrous material, which is firm and dense and irregular in thickness, being an eighth of an inch thick in some places. The liver cuts with increased resistance and has on section a brownish-yellow mottled appearance. Both kidneys are greatly enlarged, the left rather more than the right. Capsule strips easily. Cortex is thin. Pyramids are dark. Interpyramidal and pelvic tissue is increased. Section has a dull, grayish color. Spleen is enlarged and covered with a dense, white capsular deposit, similar to that on the liver, being rather thicker, reaching one-quarter of an inch in places. Connective tissue in the spleen is very much increased. The splenic tissue is unusually dark in color.

The operator of Case 2 was Dr. E. H. Lee, at the Alexian Brothers' Hospital, Chicago.

CASE 2.—Louis V., age 52, married, Belgian, storekeeper. He entered hospital Sept. 2, 1901. He smokes, and drinks alcoholics freely. He had malaria when young, but no venereal disease. One year ago he noticed swelling of the feet, which extended first up one leg, then the other. Eight months ago abdomen began to enlarge and is now greatly distended. He has recently lost considerably in weight. No other troubles are complained of. Appetite is good.

On physical examination, lungs elicited tubulo-vesicular breathing anteriorly, and subcrepitant râles posteriorly. Heart

apex was displaced upward; sounds were distinct and normal, and pulse rapid. Superficial veins were distended. There was distinct caput Medusæ. Arteries were normal. Abdomen was filled with fluid and greatly distended. Liver and spleen were not outlinable. Urine gave sp. gr. 1006; acid reaction; urea 1.2 per cent. Albumin was present; also indican, granular casts, blood cells, leucocytes and uric acid crystals.

September 3, 1901, he was tapped; three gallons fluid. Operation was made Oct. 10, 1901, under ether, with median incision above umbilicus. Parietal peritoneum was scarified and scraped, as was also the surface of the omentum. Omentum was sutured to parietal peritoneum. Wounds were closed; primary union November 4, two gallons fluid were tapped. Patient left hospital feeling somewhat better, but gradually failed and died on the last of December, 1901.

The following two cases were operated on by the author:

CASE 1.—D. H. M., Englishman, aged 56 years, married, liveryman, was admitted to the Policlinic Hospital March 28, 1900. Mother, one brother and two sisters died of tuberculosis. He had had most of the children's diseases. He had been quite a hard drinker of strong alcoholics for some years, with no history of syphilis. Up to a year ago patient felt comparatively well. At this time he had a severe epistaxis, which lasted three days. Vomiting also occurred, and he became very weak. He had to remain in bed three weeks. About a month later he had a similar attack, not so severe as the first. December 1, 1899, he had a third attack. About this time jaundice appeared, and two months ago his abdomen became distended. He was tapped and 11 quarts of fluid withdrawn. Since the first tapping he has been tapped eight times at intervals of about six days. Appetite is good; no vomiting. Bowels are constipated. He lost 25 pounds during the past year.

Physical examination showed jaundice quite well marked. Heart was displaced upwards, but sounds normal. Lungs were normal, except compression of lower border. Respiration was labored, accelerated, becoming dyspneic on exertion. Arterial sclerosis was marked in temporals and radials. Abdomen was so much distended with fluid that liver and spleen can not be accurately outlined. Uranalysis showed: Urine dark brown, acid; 1032; no albumin; no sugar; bile; urea 3 per cent. Leucocytes and oxalate crystals were present.

Diagnosis was cirrhosis of liver with ascites.

Operation was done March 30, 1900, by median incision above umbilicus. Omentum was found very much thickened and congested. Liver was small, hard and nodular on surface—typical hobnailed liver. Spleen was enlarged. Parietal peritoneum was scraped with scalpel and omentum stitched with catgut over as large an area as possible. Wound was closed without drainage; primary union occurred.

April 3, abdomen was so distended that it was thought best to tap to reduce tension; six and one-half quarts of fluid removed. On April 11 about five quarts were tapped. Patient felt quite well, jaundice disappearing. On April 12, he left hospital. He was able to be up and around after reaching his home, which was in a neighboring state. The ascites did not return sufficiently to require another tapping. On April 22 he suddenly became unconscious and died. At the autopsy the cause of death was found to be a large cerebral hemorrhage. The omentum was firmly adherent to the abdominal wall, and the blood vessels in the adhesions were quite large.

CASE 2.—John R., German saloonkeeper, aged 55, was admitted to Alexian Brothers' Hospital July 10, 1901. Mother died of tuberculosis. He drank on an average of from 10 to 15 glasses of beer and four to eight glasses of whisky a day. There was no history of venereal history. He had gastritis 18 years ago, but had been in fairly good health up to June, 1901, when his abdomen began to enlarge and felt tense. Some distress was noticed after eating. About July 1 the ankles began to swell, and the swelling gradually extended up the legs. The skin was slightly jaundiced, and tongue coated.

Aortic sounds were accentuated. Arteriosclerosis was very marked. Radials were so hard that it was almost impossible to feel pulse wave. Lungs were negative.

Abdomen was enlarged and greatly distended with fluid. Spleen area was enlarged. Liver was not definitely outlined on account of the ascites. Superficial veins over abdomen were enlarged. Edema of lower extremities extended up to the knees.

Diagnosis was alcoholic cirrhosis of liver. He left the hospital on July 1, and returned on October 28 feeling much worse. Oct. 31, 1901, operation was done, with median incision above umbilicus. Liver was found small, hard and distinctly hobnailed. Spleen was enlarged. Parietal peritoneum was scraped with scalpel and omentum stitched to it with catgut over as large an area as possible. Wound was closed without drainage. Primary union ensued.

He was tapped November 9, 23, and December 22, about eight quarts of fluid being removed each time. He was up and around for a time, but did not gain in strength. Bowels moved with difficulty. For some time after the operation he lay in bed and seemed rather drowsy. Urine was dark brown, acid, 1026, with no albumin, no sugar, no peptone or albumose, no casts, no blood, bile present. He gradually failed and died Dec. 25, 1901. No autopsy.

These cases, with the 22 collected and reported by Packard and Le Conte, make a total of 46 cases at our disposal for analysis. Some of the cases are so lacking in essential details as to be practically of no value. We also find that the cases cover quite a range of pathologic conditions, and are therefore not comparable. Thus, we find represented alcoholic cirrhosis with atrophy of the liver; cirrhosis with enlargement of the liver; cirrhosis due to malarial infection; changes in the liver of syphilitic origin; cirrhosis of unknown origin; cirrhosis attributed to chronic heart disease; cirrhosis of infectious origin; ascites due to chronic peritonitis; ascites probably due to tuberculous peritonitis; ascites associated with probable sarcoma of omentum, and ascites supposed to have been due to thrombosis of the vena portæ.

In some cases, complications were present, such as marked arteriosclerosis, chronic nephritis, chronic inflammatory changes in the peritoneum, etc. The cases are thus of such an heterogeneous mixture that it is almost necessary to consider each one by itself.

If we consider first the largest group, namely, alcoholic cirrhosis with atrophy, we find 23 cases. Of this number 7, or 30 per cent., died within fourteen days, 5 more died within two months, and one died at six months. Of the remainder, two were living two years after operation, no recurrence of ascites. One was living one year after operation, no recurrence of ascites. One was living, time not stated, no recurrence of ascites. One was living six months after operation, improved, trace of ascites. One was living four months after operation, improved, trace of ascites. One was living four months after operation, improved, trace of ascites. One was living three months after operation, tapped twice. One was living, time not stated, improved, trace of ascites. One was living, time not stated, unimproved.

As the object of the operation is the cure of the ascites, the result has reference to this symptom in particular. Summarizing this group we find that 30 per cent. of the cases were dead in fourteen days; 52 per cent. of the cases were dead in two months; 56 per cent. of the cases were dead in six months. Of the late deaths ascites had returned in practically all of them; 13 per cent. may be said to have recovered from the ascites at the end of a year or longer. The remaining 30 per cent. were either unimproved, had to be tapped or were reported improved with some ascites still present, but the time was so short after the operation that the improved cases could not with any justification be termed "cures."

The pathology of the remaining cases is varied, and the number so small that satisfactory grouping is not possible: One of syphilitic cirrhosis, died on the fourth day. One not stated, died on the fourth day. One of sarcoma omentum, died in six weeks. One of malarial cirrhosis, died in three months, with no improvement. One of syphilitic cirrhosis, died in four months, with no improvement. One of large, smooth, pale liver, not cirrhotic, died in nineteen months; frequent tapping was required. There were 2 cases of cirrhosis secondary to chronic peritonitis, with no improvement. The pathology of one case was not stated. One case, thrombosis vena portæ. In one case of cirrhosis of unknown origin, after cholecystotomy, ascites returned slowly. In one case, not stated, tapped in one month, there was four months later, no ascites. In one, of malarial cirrhosis, no time stated, improvement was doubtful. In one case of cirrhosis due to infection, no time stated, ascites was still present. One case, not stated, felt well four months later. In one case of unknown origin, one year later, there was no ascites. In one of enlarged liver, with probable tuberculous peritonitis, there were three operations: two years later was well, with no ascites. One case of cirrhosis of pericardial adhesions, two years later, showed no ascites. In one case no cirrhosis, with operation for intestinal hemorrhage, hemorrhage ceased and was well two years later. One case was reported on the eighth day, too early to determine result.

In the cases unaccounted for the facts at hand were too meager to warrant any statements.

Summarizing this group of mixed cases we find that 10 per cent. were dead in four days; 25 per cent. were dead in four months. In 40 per cent. no improvement was apparent, and 10 per cent. reported too early to state result. About 15 per cent. may be said to have been "cured" of the ascites for one year or longer and 5 per cent. "cured" of intestinal hemorrhages, no ascites having been present at any time.

In considering the operation itself, we find that various methods have been employed, according to the fancy of the operator. The omentum alone has been stitched to the parietal peritoneum with catgut, silk and silkworm-gut. The parietal peritoneum has been scarified and denuded of its endothelium by rubbing with dry gauze sponges, the use of the curette, scalpel, etc. The surface of the liver, spleen and diaphragm have been irritated, with the intention of causing more extensive adhesions. Incisions have been made longitudinally, transversely and T-shaped. The omentum has been placed in pockets between the peritoneum and the muscles and in the subcutaneous tissue, each operator thinking his particular method the best.

From the small number of cases at hand it can not be shown that the particular method employed has had any special influence in determining the result.

The experiments of Tillmans seem to demonstrate that large anastomosing blood vessels are more quickly formed when the peritoneum has been denuded of its endothelial covering by scraping with a curette or scalpel. Drainage, either tubular or capillary, does not seem to be desirable, as aside from the great annoyance to the patient the danger of infection is always present, and the results thus far do not appear to have been influenced by its use.

When we consider the clinical results, respectively the relief of ascites, that have followed the Talma operation, it can not be said that they have thus far been very flattering. One reason for this is the fact, as already shown, that the operation has been performed in a variety of pathologic conditions, some of which precluded the possibility of a favorable result. Even if we consider only the cases of true atrophic cirrhosis of alcoholic origin, we find the results have not been as favorable by any means, as one would like to see.

In considering the reasons for this it is necessary to turn to the cause of the ascites. As stated in the preliminary remarks, the Talma operation is based on the theory that the ascites is due to an increased tension in the portal system, and is therefore a pure pressure transudation. The author is of the opinion that this view is not correct, and for the following reasons: 1. Atrophic cirrhosis may proceed to a fatal termination without the appearance of ascites. 2. Increased tension may exist in the portal system, as made manifest by gastric and intestinal hemorrhages, without the development of ascites. 3. In many cases of cirrhosis, edema of the feet and legs may precede the appearance of ascites by several weeks or even months, and in the absence of any apparent kidney disease. One of the most important reasons, however, according to the author's opinion, is the fact that in these cases of cirrhosis a chronic inflammation of the peritoneum occurs, which must contribute materially to the development of the ascites, both by increasing the amount of fluid furnished by the peritoneum and by decreasing the rate of absorption. This chronic peritonitis does not seem to have attracted the attention sufficiently of the pathologists. That it occurs in the form of a perihepatitis has long been observed, but that the process occurs practically throughout the peritoneum does not appear to have been noted.

The peritoneum covering the liver is found enormously increased in thickness, the thickness in many places equaling 3 to 4 mm. The changes consist in an extensive hyperplasia of the connective tissue with round-cell infiltration. There is also a proliferation of the endothelial cells, but this layer is often lost in the preparation. These changes are not limited to the peritoneum covering the liver, but sections taken from the parietal layer, from the mesentery of the small intestine, from various portions of the diaphragm, etc., show that the changes are quite universal throughout the peritoneum. The peritoneum covering the diaphragm is well known to be extremely active in its power of absorption. The changes herein described could scarcely fail to materially diminish this power. That the chronic peritonitis is instrumental in producing the ascites is also shown by the fact that the osmotic tension of the fluid is at times greater than the osmotic tension of the blood, indicating its inflammatory nature.

There are many other points of interest and importance in this connection, such as the toxic condition of the blood, the changes in the arteries, the state of the kidneys, etc.

What, then, may we conclude regarding the present state of the surgical treatment of ascites in cirrhosis of the liver?

1. While the increased tension in the portal system is an important factor, it is not the only one concerned in the production of ascites.

2. Talma's operation in itself is quite simple and practically devoid of danger, as the deaths have been due to complications or to the advanced stage of the disease.

3. As the chronic inflammatory changes in the peritoneum are materially instrumental in maintaining the ascites, the operation should be performed early, in a pre-ascitic stage if possible, in order that the reduction

of tension in the portal system may delay the appearance of these changes and secondarily the ascites, as long as possible.

4. In a few cases the ascites has apparently been favorably influenced by the operation, but such has not been the rule, nor does it appear that the operation has in any way modified the usual course of the disease.

ROENTGEN RAYS IN PULMONARY DISEASE.*

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The brief time allotted to me in this symposium permits only a hurried survey of the advanced data in lung skiascopy. The possession of an *x*-ray apparatus does no more in postulating a knowledge of skiascopy than the possession of a microscope, of microscopy. The errors perpetrated by the microscopist are no less grave than those of the skiascopist. Skill in the use of the Roentgen rays for purposes of diagnosis can only be attained by the elimination of errors and this requires much experience. One should be prepared at the outset of an examination to see nothing, so that the expectant mind does not transfer to the ocular sense a function which should be reserved for judgment. The *x*-rays have not supplanted the conventional physical signs of thoracic disease; on the contrary, the later signs have advanced in value since the advent of the former. It is my custom to initiate a clinical examination with the Roentgen rays and to corroborate or enhance their revelations by the physical methods of examination, after the same manner as we employ the low powers of our microscope for a general view of the architecture of a specimen, reserving the high objectives for detail study. The proper interpretation of an *x*-ray examination coupled with correct technique means essentially a study of chiaroscuro. This study of light and shadow effects is an elementary task only to the tyro whose celerity in diagnosis is only eclipsed by his marvelous discoveries. An *x*-ray examination is practically an autopsy conducted during life, with the advantage that the functional activity of the organs accelerates diagnosis on the principle that a clinical is often more easy of achievement than an anatomic diagnosis.

NORMAL LUNGS.

No resistance is offered to the rays by the normal lungs. They apear on the fluorescent screen brighter during inspiration than expiration. The brightness of the lungs is, however, only a relative term and is dependent so much on the thickness of the thoracic coverings and the degree of lung inflation, that I doubt even with ingenious apparatus like the densitometer and similar instruments, whether we are able at the present time to establish standards of comparison. The apparatus in question measure the penetrating quality of the rays as much as they do the density of the tissues which they traverse.

There are certain situations in the region occupied by the lungs where shadows may normally be encountered. The most important situation is the apical regions. Here the muscles of the shoulders may cast a distinct shadow, yet the integrity of the apices may be preserved. Raising and lowering the arms will increase or diminish the area and intensity of the shadow, hence the origin of the umbra may be referred to the muscles of the shoulders. In the region corresponding to the vertebral borders of the scapulæ the muscles may cast a linear shadow in front as well as behind, but the genesis of the umbra may be referred to its true source by noting its disappearance when the position of the scapulæ is changed. In very muscular persons, other muscles, notably the serratus magnus, may throw a shadow.

In this connection, it is specially with lung inflation that I wish to speak, for, if there is any one condition above all others which misguides us in our *x*-ray interpretation, it is this. The physiologic principles involved in respiration are not always strictly in accord with clinical observation. Some of the apodictic utterances of the physiologist have been disproved by the Roentgen rays. For instance, physiology has always taught that with each inspiration the diaphragm becomes flatter in consequence of its contraction. This is not true. When viewed in action its curve is always maintained and its excursions resemble the up and down plunging of a piston. Physiology also teaches that the lungs, even at the end of expiration, are in a stretched condition. This physiologic dictum may be true in relation to primeval man, but civilized man has so subverted primeval respiration by attire and modes of living that what is now regarded as physiologic is essentially pathologic. For many years I have sought to prove, by experimental investigations and observations that the lungs even in a state of health do not fully occupy the thoracic cage. On the contrary, there are circumscribed lung areas which yield a dulness or even a flatness on percussion, areas which I have denominated atelectatic zones. I have also shown in numerous contributions that these areas may involve a lung apex, a lung lobe, or even the entire lung. It is gratifying for me to add that these observations have been accepted by Cabot, Kernig, and others. The *x*-rays have furnished me with indisputable evidence of my contention that such atelectatic patches will cast shadows on the screen, and that the shadows thus cast are of greater area than percussion would seem to indicate, and further, that the Roentgen rays will determine the presence of such atelectatic patches which elude percussional investigation. It is chiefly as an aid to percussion that the rays are operative. A percussion blow is propagated from 1½ to 2½ inches on the surface and to a depth of about 2½ inches, hence it is easy to understand why the *x*-rays supplement percussion when the object is beyond the reach of the latter method. My object in emphasizing this question is to show that a lung not distended to its physiologic capacity offers an obstacle to the transmission of the rays, and consequently the appearance on the screen of shadows. Now it is the conventional practice to interpret all shadows cast on the screen as evidence of pulmonary or pleural disease and the mistakes that are bound to occur are almost as egregious as that committed by Holme's young physician whose stethoscope lodged the spider and the couple of imprudent flies. I maintain with all seriousness that any physician who places sole reliance on shadows cast on the screen as evidence of pulmonary disease, notably phthisis, without an attempt to eliminate their probable origin, will make the diagnosis of phthisis in more than fifty per cent. of the cases coming to him for examination.

Before an *x*-ray examination of the chest is attempted an effort must be made to eliminate unemployed lung areas. As a rule, deep forced inspirations conducted before and during the examination will suffice to maintain lung distension. Very often this will not suffice and then recourse must be had to inducing what I have

* Read before the San Francisco County Medical Society, Feb. 11, 1902.

called the lung reflex. This reflex may be discharged most effectually by directing a spray of ether over the skin of the chest in the specific region investigated. When the latter is not at command, the skin may be vigorously rubbed with the hand or a towel. The result of this expedient is a momentary lung dilatation contiguous to the irritated skin area. Not infrequently this method is not efficient and recourse must be had to the

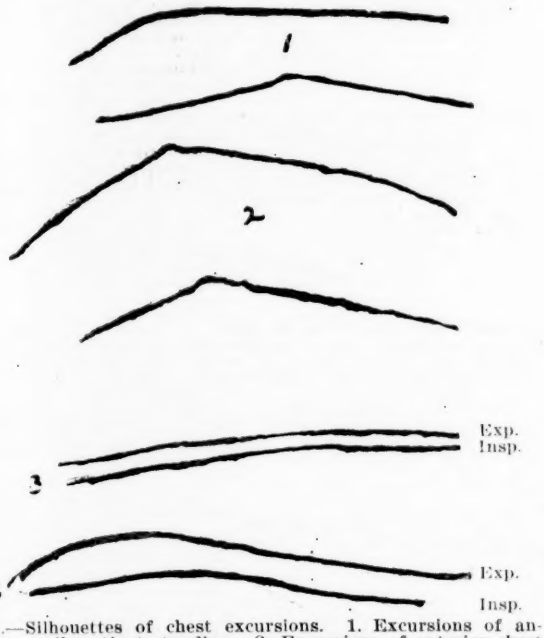

Fig. 1.—Silhouettes of chest excursions. 1. Excursions of anterior chest wall, patient standing. 2. Excursions of anterior chest wall, patient in recumbent posture. 3. Excursions of posterior chest wall, patient standing. 4. Posterior chest wall excursions, patient in prone position.

inhalation of compressed air. Recently I have been investigating the effects of such inhalations while the rays were traversing the chest and I have noted the enormous mechanic distension of the lung alveoli by such inhalations. During an examination of the lungs,

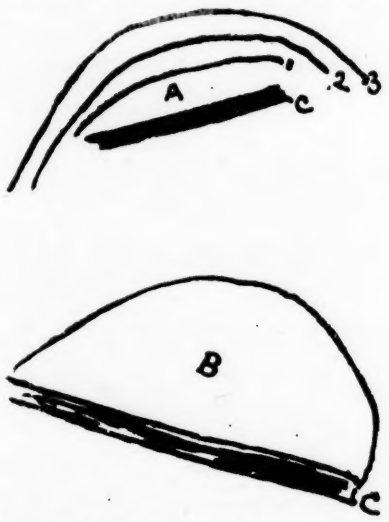

Fig. 2.—*A*, *c*, Clavicle. 1. Area of apex in normal breathing. 2. Apical area in deep breathing. 3. Apical area after elicitation of lung reflex. *B*, *c*, Clavicle. Apical area after strapping the lower chest.

the position of the patient is of the greatest importance. I can not at this time enter into a complete discussion of this subject, but will limit myself to a simple object lesson. Only recently a young man was sent to me by a colleague for a chest examination. He had a persistent cough and above his cardiac region was a diffused patch of dulness which was likewise evident at a similar point on the posterior surface of the chest. This dulness did not disappear after forced inspirations, nor after induction of the lung reflex, yet the absence of auscultatory signs convinced me that the patch in question was only atelectatic. An *x*-ray examination demonstrated a shadow which corresponded to the area elicited by percussion. When the patient assumed the recumbent posture, dulness was no longer in evidence and the *x*-rays in this posture showed no shadow. But when the erect

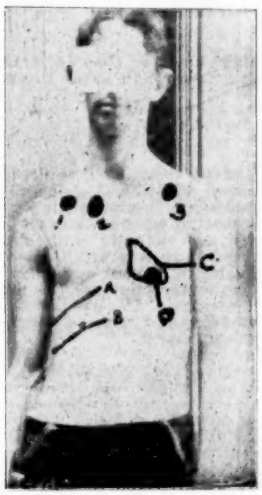

Fig. 3.—Emphysema co-existing with atelectatic zones in an individual with early phthisis. 1, 2, 3, Atelectatic zones. *A*, Normal line of hepatic dulness. *B*, The line of hepatic absolute dulness in this individual. *C*, Normal area of cardiac dulness, which is represented in this person by the dark area, *D*.

position was resumed, dulness and shadow reappeared. This object lesson prompted me to investigate the respiratory activity of the lungs contiguous to the anterior surface of the chest in different postures. By means of my stethophonometer, which enables me to gauge the intensity of respiratory as well as cardiac sounds, I elicited the important fact that, in the recumbent posture, the lungs adjacent to the anterior chest wall were twice as active as in the erect posture. I further corroborated

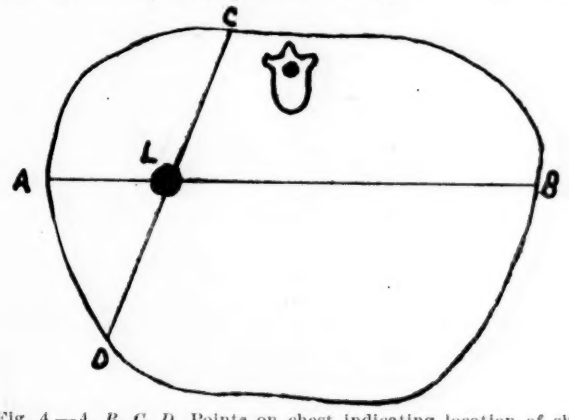

Fig. 4.—*A*, *B*, *C*, *D*, Points on chest indicating location of shadows. *L*, Location of lesion.

this auscultatory investigation by stethographic measurements with a simple method, which I here show you. By means of this ground glass inclosed in a frame, I can silhouette the chest and its excursions more perfectly than by any other method. The accompanying illustrations are from a healthy individual and show that the excursions of the anterior chest wall are greater when the patient is on his back than when standing in the erect position and similarly when he adopts the

SKIASCOPIC TABLE OF THORACIC DISEASE.—ABRAMS.

DISEASE.	X-RAY APPEARANCE.	DIAPHRAGM.	HEART.	GENERAL REMARKS.
Abscess of lung.	Site of abscess indicated by dark shadow, usually found in lower lobe of lung. Shadow may disappear when abscess cavity is emptied.	Excursions usually limited on affected side.	No dislocation of the viscera.	If abscesses are multiple, shadows are small and diffuse.
Thoracic aneurysm.	If involving descending arch, shadow to left of sternum and above heart; if of the ascending aorta, shadow to right of sternum. Large aneurysm may throw a shadow on both sides of sternum. Pulsation visible if sac is not too thick or filled with clots.	Excursions may or may not be restricted.	Heart usually displaced downward to left. Left ventricle may be enlarged.	Shadow in aneurysm of ascending aorta nearer the front chest; if of descending aorta it is near back of chest. Simple dynamic throbbing of aorta and dislocation of artery by displaced vertebra must not be confounded with aneurysm. In aneurysm also search for pulsation and shadow in region of left scapula behind.
Asthma.	Lungs brighter than normal and extend higher and lower in chest.	Lies low and excursions retarded.	Position of heart lower and moves less during inspiration than normal. Right ventricle enlarged and outlines of heart unusually clear, owing to bright lungs.	After a paroxysm, normal brightness of lungs and diaphragmatic excursions reappear unless emphysematous lung changes have become permanent.
Atelectasis (collapse of the lung)	Shadows correspond to areas of collapse. If collapse is extensive, shadows are correspondingly so. If occurring as a complication of bronchitis, shadows will appear corresponding to areas implicated.	Excursions restricted as a rule.	Normal.	Forced breathing will dissipate shadows. Rubbing skin of chest or spraying with ether will cause shadows to disappear. (Lung reflex.)
Bronchiectasis.	No shadow unless lung adjacent to bronchiectasis is solidified; then shadows are usually found in middle and lower thirds of lung posteriorly.	If emphysema complicates affection, excursions are restricted and midriff lies low.	The right ventricle may be enlarged as a complication. The occurrence of fibrosis may dislocate heart.	If chest is examined before a bronchiectatic cavity is emptied by coughing, distinct shadow corresponding to cavity is evident and is superseded by a bright area when contents are expectorated.
Bronchitis.	Normal lung brightness, but perhaps a shade less bright when free secretion is established. In latter instance diffused cloudiness is usually limited to the lower two-thirds of the lungs.	Excursions normal unless smaller tubes are obstructed, then they are restricted. Coughing by removing secretions may restore normal excursions.	Position unchanged. In chronic cases, right ventricle may be dilated.	In the bronchitis of influenza, a localized shadow or shadows may be caused by complicated foci of lobular pneumonia. Shadow confined to apex suggests bronchitis of tubercular origin.
Broncho-pneumonia.	Circumscribed shadows widely scattered through the lung. Coalescence of foci of inflammation increases area of shadows. Shadows usually limited to middle and lower lobes.	Movements very much restricted and diaphragm may be high, especially during inspiration.	Unchanged as a rule.	Shadows due in part to areas of lung collapse, in which instance coughing and deep breathing will cause their evanescence, but shadows caused by foci of inflammation persist.
Congestion of the lungs.	Bases of the lungs cast a faint shadow. The rest of the lungs are from temporary over-distension unusually bright.	Midriff lies low, is not as clearly discernible as normal and shows restricted excursions.	Position unchanged as a rule, although it may lie low. Right side of heart distended.	If congestion be dependent on cardiac incompensation the use of cardiac tonics will soon dissipate shadow.
Emphysema.	Pulmonary area of increased brightness which extends higher and lower in the chest.	Low and restricted in movements.	Area clearly defined; lies low. Right ventricle and auricle are enlarged.	If tuberculosis complicates emphysema, abnormal lung brightness is marked by shadows usually confined to apices.
Empyema.	Vide, pleurisy with effusion. Displacement of the heart and liver is greater in empyema than with the same quantity of serous effusion. In pulsating form of pleurisy (usually in empyema) the heart movements transmitted to fluid may be seen as diffuse undulation if patient is motionless.			
Pericardial effusion.	Cardiac area enlarged, but differs from shape of mere cardiac enlargement by being rounded. Pulsations of heart no longer evident.	In sitting posture, position of left diaphragm can not be followed so far toward median line as in health. Movements restricted.	Cardiac area low.	Best skiascopic view is often obtained from back when lung is not too compressed. Then the conical appearance of apex is lost. Triangular space behind heart is obliterated.
Pleurisy with effusion.	Diffused shadow on affected side; dark area changes with position of patient. As effusion is absorbed, a lighter area increases from above downward.	On affected side outline less defined or obliterated.	Heart displaced to right or left side according to side affected. Liver displaced downward in large effusions only.	Any lung visible on affected side is darker than on healthy side, owing to compression by effusion.
Pneumonia (croupous).	Affected lobes cast dark shadows. Middle portion of lung usually affected (between second and fourth ribs).	May be obliterated; excursions very much restricted.	Usually enlarged on right side, and displaced toward unaffected side.	Shadow of affected area persists until complete resolution occurs. Persistence of shadow may indicate complications or thickened pleura.
Pneumothorax.	Affected side very bright and area of clearness increased.	Low and shows no movement.	Outlines clearly defined and dislocated toward unaffected side.	The degree of dislocation of heart and liver dependent on intrapleural pressure.
Pneumohydrothorax and Pneumo-pyothorax.	When patient is in sitting posture there is a very dark area below and a very light one above on the affected side. Level of dark area (fluid) rises with inspiration.	Obliterated and no movements seen.	Heart displaced toward unaffected side.	The degree of dislocation of heart and liver dependent on intrapleural pressure.
Subphrenic abscess (containing air).	Dark shadow limited to lower thorax; above which is a very light area (air) and above this a slightly dark area caused by compressed lung.	Obliterated and no movements.	Heart displaced toward unaffected side, but not to same degree as in pneumohydrothorax.	Level of dark area changes on change of position of patient and when patient is shaken by the shoulders splashing of fluid is observed.
Tuberculosis (pulmonary).	Apex of affected side darker than normal and area of same does not increase with inspiration. In acute miliary tuberculosis lung shows discrete shadows embedded in a light environment (over-distended lung). Cavities, if filled with mucus or fluid, show circumscribed shadows, but when empty appear as light areas if not surrounded by consolidated lung.	Excursion very much restricted, especially on side affected.	May be dislocated in extensive disease toward unaffected side. In chronic cases, right side enlarged.	Progression or retrogression of lesions may be determined by repeated examinations. An apex not fully inflated may cast a shadow even in the absence of disease. (*Vide* atelectasis).

SKIASCOPIC TABLE OF THORACIC DISEASE.—ABRAMS.

DISEASE.	X-RAY APPEARANCE.	DIAPHRAGM.	HEART.	GENERAL REMARKS.
Tumors.	Shadows are cast by intrathoracic growths. They are circumscribed as a rule and are commonly confined to the middle or upper part of chest. If they pulsate, pulsation is an up-and-down movement and not expansile as in aneurysms.	Normal, as a rule, in position and excursions.	Heart may be dislocated by large growths.	Locate site of all lesions as follows: Point *x*-ray tube in direction of the anterior, posterior and lateral chest walls respectively, and on these different aspects mark with pencil the location of shadow. Next determine form of chest with cyrtometer and transfer this form on paper. Connect sites of shadows as perceived on different surfaces of chest by lines, and at the intersection of the latter the lesion will be situated.

DISEASES OF THE DIAPHRAGM.—In *spasm*, diaphragmatic movements are practically suspended on affected side. Suddenly diaphragm contracts and descends several inches below its normal descent. Singultus may accompany the descent, while cyanosis and dyspnea become intense (personal observation). In *paralysis*, movements of diaphragm on affected side are suspended; during inspiration, midriff rises. In *diaphragmatic pleurisy*, movements of diaphragm very much restricted or even suspended. Lungs in upper part of chest brighter than usual, owing to over-distension.

NORMAL LUNGS are brighter during inspiration than expiration.

AVERAGE NORMAL EXCURSION OF DIAPHRAGM in quiet breathing: 1½ centimeters; between full inspiration and expiration, 6.7 cm. on the right side and about 7 cm. on the left side. In long-chested persons, diaphragm excursions are greater than in short persons with deep chests.

WIDTH OF NORMAL HEART.—(Screen about 75 cm. from tube with target directed toward a point where median line is crossed by fourth rib) Right heart measures 3 cm. from median line, and left heart, 8.5 cm. from median line; total, 11.5 cm.

prone posture, the excursions on the posterior chest wall are greater when the body is inclined forward than in the standing posture. To demonstrate the inflation capacity of the lung apex, let me direct your attention to a fluoroscopic reproduction of the apex in a normal individual. Note the area of luminosity represented by the apex in tranquil breathing. Observe how this area is augmented after forced deep breathing and again after elicitation of the lung reflex. Observe the extraordinary increase in luminosity after strapping the lower chest, which permits of breathing in the upper chest only. A word of caution is necessary to those who are desirous of confirming the latter observation. Owing to the extraordinary respiration in the upper chest area, the clavicles by their elevation obscure the luminous apical area, hence the latter area should only be gauged when the patient practices forced expiration which will permit of a complete descent of the clavicles.

In certain thoracic situations, the pleural sac is larger than the lung volume and forms spaces known as pleural or reserve spaces. Of these different spaces, I want to direct your attention to the largest, known as the sinus phrenico-costalis, which is located at the lower outer lung border at a point where the costal passes over into the diaphragmatic pleura. This space is clearly defined when the patient leans over to one side during the *x*-ray examination. It is at this point that we can best observe the play of the diaphragm and the condition of the pleura and the picture is tantamount to an *x*-ray dissection. First we note the coverings of the thorax, then the ribs and then the pleura. The normal condition of the latter is evidenced by the negative results of the examination in other words, if there are no pleural adhesions nor pleural thickening we see nothing. This situation is the best as far as my observations go for studying pleural disease.

PRECARDIAL AND RETROCARDIAL REGIONS.

In front of and behind the heart are two important regions which have not received the attention they deserve in the thoracic disease. They are best seen when the rays are directed through the chest from side to side. They correspond respectively to the anterior and posterior mediastina. Growths and enlarged glands in the former space may be determined, whereas in the latter region disease of many important structures like the trachea, bronchi, esophagus and bronchial glands are possibly of early detection.

EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.

The early recognition of this disease gives promise of its successful treatment, for, if there is one fact which the phthisiologist has demonstrated for curative medicine, it is the curability of phthisis. To-day the words of Brehmer are verified: *"Tuberculosis primis in stadiis semper curabilis."* The presence of shadows on the screen as determined by the rays is a sign equally as tardy as the recognition of tubercle bacilli in the sputa. We are here concerned only with skiascopic evidence which betrays the disease at its very incipiency even before physical signs are manifest. In this respect the rays are of undoubted importance and we possess a means which permits of the very earliest possible diagnosis. Many of us in our practice meet with the phthisiophobiac and we are now in the possession of means that will often rid that unfortunate individual of his fear. Of course, to depend on the rays alone for purposes of diagnosis would be to invite exclusivism which would be fraught with danger to the catholic foundation on which diagnosis rests. There are two early signs to which I wish to direct your attention, viz., restriction of the excursions of the diaphragm, and the emphysematous *x*-ray appearance of the lungs. The physiologic diaphragmatic excursions vary according to whether the breathing is quiet or forced. In quiet breathing, the extent of movement is about 1.8 cm. on the right, and 1.5 cm. on the left side; whereas, in forced breathing, the difference in the position of the diaphragm between forced inspiration and expiration, averages 6.7 cm. on the right and 7 cm. on the left side. Individuals with long thoraces show greater excursions of the midriff than deep-chested persons. The restricted diaphragmatic movements must be regarded as a very suspicious sign of phthisis, other things being equal. This sign first referred to by Williams of Boston has received universal confirmation, but, to my knowledge, no theory has been advanced to explain its existence. I have sought elsewhere an explanation for this curious phenomenon and I will briefly summarize my investigations which gave birth to the theory that an emphysematous condition of the lungs exists in phthisis. Rokitansky noted that too voluminous lungs coupled with a small heart characterized the phthisical habitus. No one seemed to have contradicted this observation and as a result it was soon relegated to oblivion. Brehmer revived and vigorously defended this hypothesis. The too voluminous lungs of Rokitansky and Brehmer

are lungs which are practically the lungs of emphysema. In health, the percussion note of the lungs is resonant during inspiration and dull or even flat during expiration. In emphysema, the percussion note is unchanged during the two phases of respiration. This unchanged percussion note heretofore recognized in pulmonary vesicular emphysema is pathognomonic of lungs predisposed to tuberculosis, and in lungs already affected. Associated with the unchanged percussion sound there is an extension of the lung borders manifested by downward lung dislocation and diminution to the extent of obliteration of the cardiac and splenic areas of absolute dulness and diaphragmatic immobilization. As a rule, this lung emphysema in phthisis is limited to the lower lobes and is dependent on the fact that the air entering the respiratory tree travels in the direction of least resistance. Not infrequently, as in the accompanying illustration, the emphysema is associated with atelectatic zones. If the physician were to depend on percussional dulness as an evidence of early phthisis, the affection would never be recognized; lung resonance, not dulness, is the early physical sign of phthisis. The rays are invaluable in the recognition of the emphysematous condition. The lungs seem too large for the chest, the diaphragm is low and its excursions restricted. The lungs appear permanently bright, not alternately so as in their normal condition, and "statuesque" is about the best word to describe their appearance. It is interesting to observe parenthetically, how such lungs contribute to the development of phthisis. Defective pulmonary elasticity means some defect in the pulmonary elastic tissues. It may mean a congenital defect as Cohnheim has observed in a large number of cases of emphysema. A loss of pulmonary elasticity eliminates an important factor, not only in lung nutrition, but in the nutrition of the entire organism.

PNEUMONIA.

In this disease the rays are of service in detecting and locating pneumonic areas which resist the conventional physical methods of examination. In differential diagnosis, as for instance in deciding between a pleural effusion and pneumonia, the rays are indispensable. The recognition of the condition of the lungs after apparent recovery from pneumonia is one of the most important but neglected problems of the physician. Here the rays subserve a useful purpose. The sequelæ of unresolved pneumonia are many. I have learned one lesson of which I am proud and that is to observe and treat the lungs after apparent recovery from an attack of pneumonia. Cases of apparently protracted bronchitis in children as well as adults are in reality cases of broncho-pneumonia, the discrete patches of which disease are made evident by the shadows thrown on the screen.

EMPHYSEMA.

I have already referred to the appearance of the lungs in this affection. Inasmuch as an emphysematous lung will interfere with topographic percussion of the heart, spleen and liver, the rays offer no obstacle to the correct demarcation of these organs. The co-existence of emphysema with pulmonary tuberculosis not infrequently masks the dulness on percussion elicited in the latter disease, an error which the rays will eliminate.

BRONCHITIS.

In this affection I have noted no particular skiascopic changes unless the disease was complicated by broncho-pneumonia, in which instance I have been able to demonstrate shadows limited to the broncho-pneumonic patches.

PLEURAL EFFUSIONS.

When these are present, the diaphragm is in slight evidence or is not seen at all. The dark area represented by the fluid casts, as a rule, a more distinct shadow than is observed in most affections of the thorax and the shadow may change on the patient's position being altered. Dislocation of the heart may readily be seen when it exists. In encysted pleurisies, the usual physical signs must yield in a diagnostic sense to the rays. Unsuspected complications of pleurisy, such as tuberculosis and pneumonia, may be determined when the conventional physical signs lead us into error. There is one point which I have noted in pleural effusions, that the heart is dislocated long before there is any displacement downward of the diaphragm. This is in accordance with the fact that the diminished pulmonary suction on the affected side will cause the heart to be drawn over by the greater suction of the opposite side. Now the pressure on the abdominal side of the diaphragm being positive, it is only when the pressure in the pleura becomes more positive that any downward dislocation of the diaphragm occurs. Even in the presence of large effusions on the left side, I have obtained the tympanitic percussion note of the stomach as high up as the sixth rib in the mammary line. In searching for small effusions, the angular spaces on either side situated between the outer portion of the diaphragm and the chest wall should be examined. Pleural thickening, which may often be confounded with small effusions, may be differentiated by a careful study of the angular spaces referred to. Any change in the darkened area, as indicated by changes in the position of the patient, speaks for effusion. If pleural adhesions are present their presence is indicated by limited excursions of the diaphragm.

PNEUMOTHORAX.

In this affection the x-ray appearance shows an unusually large area of brightness. The diaphragm lies low and is restricted in its movements. The heart is dislocated toward the opposite side. I lay particular stress on the low position of the diaphragm for it is usual for text-books to teach that the pressure in gaseous effusions into the pleura can not be sufficiently positive to dislocate the diaphragm until the occurrence of liquid effusions.

TUMORS OF THE LUNG.

Neoplasms of the lung are indicated by shadows. Their presence may be determined when the usual physical signs are negative. A mere shadow is, of course, only suggestive evidence of a tumor, but the rays enable us to make a diagnosis by exclusion after weighing all the other facts elicited by the skiascopic appearance of the thorax. Enlarged bronchial glands may be detected when all other evidence fails.

The definite localization of an abscess of the lung by means of the rays is an important aid to the surgeon.

ASTHMA.

In this affection I have had frequent opportunity of observing a paroxysm while the rays traversed the chest. Often I was able to provoke a paroxysm by packing the nostrils with cotton. The apearance of the lungs is practically that of emphysema with immobilization of the diaphragm. Cessation of the attack is evidenced by mobility of the diaphragm and restoration of the lungs to their natural brightness.

The majority of lung affections, if demonstrable by the rays, throw shadows on the screen. The trained eye

may, by the density of the shadow cast and their situation, determine to a limited degree only, the nature of the anatomic condition. Thus, the presence of fluid in the pleura or a tubercular lung casts more pronounced shadows than a thickened pleura, a lung abscess or a broncho-pneumonic patch. A lung shadow gives one the impression of density and is circumscribed, whereas a thickened pleura yields a less dense and more diffuse shadow. Shadows limited to the center of the lung can not be pleurogenic and this shadow localization is not only of great importance in diagnosis but furnishes an index to the site of the operation in lung surgery, whether the object to be attained be the drainage of a bronchiectatic cavity, opening of an abscess or the location of a foreign body.

Numerous methods have been advocated for focal diagnosis. The simplest aim to determine whether the lesion is located near the front or the back of the chest will depend largely on the general principle, that the nearer the lesion which casts the shadow is to the screen, the less exaggerated and more clearly defined will be the shadow. The respiratory method is available with reference to the chest. The shadow cast in respiration and expiration will not differ materially in position nor in clearness of outline if the lesion is situated near the screen; if, however, it is distant from the screen, the shadows will be greater in extent and their contours will be indistinct. In executing an examination for focal diagnosis, the patient must be examined with the light in front and behind him. Another expeditious method is to mark with a pencil the different points on the anterior, posterior and lateral aspects of the thorax, the location of the shadow; then with a cyrtometer, determine the form of the chest and transfer it to a sheet of paper. Next unite the location of shadow by lines and at the point of intersection of these lines, the lesion may be located (Fig. 4).

I have by no means exhausted in this brief communication all the facts concerning the importance of skiascopy in pulmonary diseases. Allow me to add that *x*-ray diagnoses must be based on examination of the entire chest and not of a single organ and the *x*-rays must only be regarded as an adjunct to other methods of examinations, although no physical examination can be considered as complete without their employment. In conclusion, I have a few brief remarks to make with reference to lung development. I have investigated various prolix methods recommended for such development, employing the methods while the rays were traversing the chest. Many of them have been found faulty; in fact, they produced the original defect which they were designed to correct. I have no time to dwell on these methods at the present time, but simply suggest that the rays be employed after this manner for determining the correctness of a method which has for its object the promotion of inspiration or expiration and further, whether certain methods are of avail in promoting resorption of alveolar or pleural exudates or the relief of lung congestion in valvular cardiac lesions. I am busy at present with a study of these problems, the solution of which are reserved for a later contribution.

Discovery of Original of Galen's Work.—The Vienna *Med. Blaetter* announces the discovery of the Greek original of Galen's work called the *Sermo Adeasus Empiricost*, hitherto know only in the Latin translation. It was found at Milan by Privatdocent H. Schoene, of Berlin, who has been commissioned to catalogue the medical manuscripts in the libraries of Italy.

AN ANALYSIS OF FIFTY-TWO CASES OF TETANUS FOLLOWING VACCINIA.

WITH REFERENCE TO THE SOURCE OF INFECTION. 1839-1902.*

ROBERT N. WILLSON, M.D.
PHILADELPHIA.

The following analysis of a large number of instances of tetanus in the course of or following vaccinia, was prompted by the occurrence of a case in the practice of the writer, and by its fatal termination in spite of an early diagnosis and heroic treatment. During the five months that have succeeded the report of this case before the Philadelphia County Medical Society an attempt has been made to ascertain the details of such a number of similar cases, both in recent and past years, as would warrant a conclusion as to the source of the tetanus infection.

The proportions of this task can be realized only in part even by those who have engaged in similar work. There is abundant indication that tetanus has occasionally appeared in the course of and following vaccinia from the time of Jenner down to the present day, and it will be noted that the cases included in this paper date back as far as 1839. Many such cases, however, have for one reason or another only rarely reached the attention of the profession. While some physicians have desired the truth at any cost, others, through an unwise zeal for the protection of vaccination from discredit, have joined with many firms that manufacture vaccine to suppress and discourage reports of this unfortunate complication of a most beneficent measure. One well-known medical representative of a vaccine firm ventured in an attempt to dissuade the writer from his task on the ground that he (the writer) would incur the risk of an unwilling and unjustified association of his name with a particular commercial interest. Perhaps, therefore, in the beginning of such an analysis as is proposed, and with a view to clearing his person of any such possibility, real or imagined, it may be well for him to state in unqualified terms that he not only is not connected in any way, personal or financial, with a commercial interest of any description, but that he has at no time contemplated such a business connection. While in certain cases these obstacles have resulted in a less complete and systematic marshalling of the facts necessary to prove one or other possible source to be the real origin of the tetanus infection, the clinical histories and statistics cited below are in the main fairly comprehensive and full, and offer an opportunity to everyone for unbiased study and self-conviction. The object of this analysis is to prove:

1. The source of the tetanus infection; whether the virus, or some other medium.

2. The time of infection; whether synchronous with the vaccination, or subsequent to it.

3. If a secondary infection (not carried by the virus); then due to what circumstances, and preventable by what means.

Brief histories of fifty cases occurring between the years 1839 and the present time are submitted, withholding in all cases the name of the physician, and usually at his own request based upon obvious and honorable reasons. A number of other cases have been found in the newspaper literature and through correspondence, but with such meager data and indefinite facts as to render them unsuitable for use in such a connection.

* Read at a meeting of the Philadelphia County Medical Society, April 23, 1902.

CASE 1.—Seen for the first time on July 31, 1839. Isabella, negress slave, on Orange Grove Plantation. Date of vaccination not given. Suppurating ulcer at site of vaccination. Difficulty of deglutition, rigidity of muscles of face, and sensation of stricture at top of sternum. Rigidity of all extensor muscles of the extremities. Two days later twitching of the extremities, rigidity of the jaws, inability to protrude the tongue, arm sore from cauterization with $AgNO_3$, and a lye poultice. Eschar the size of a dollar. . . . Two weeks from commencement of attack twitching of muscles has almost entirely ceased. Patient opens mouth easily. August 25, at work and well. Treatment: Cups to spine, enemas of lobelia and opium (℥ii of solid opium, and 2 lbs. of laudanum in the enemas) during the course of the tetanus.

CASE 2.—Seen at Lowell, Mass., in October, 1845. One of two children, vaccinated by the mother from a child's arm with a darning needle. The child from whom the virus was taken was perfectly healthy, though the mother noticed that the lymph was thick and yellow. Case 2 was 5 years old. In a few hours it became sick, nervous and prostrated. Convulsions set in, and the child died in about 24 hours after the vaccination. At the site of vaccination there was a dry and angry-looking wound, without an areola, and apparently extending through the true skin.

CASE 3.—Aged 7 years. Vaccinated by mother at same time with preceding case, and in same manner. This child also suffered from severe nervous symptoms and prostration, also from convulsions, but ultimately recovered. A dry angry ulcer was also to be seen at the site of this vaccination. Gradual recovery presumably lasted over months. The coincident occurrence of two infections, one violent and fatal, the other severe but prolonged and ending in a tedious convalescence, and the fact that both cases were marked by the presence of an angry vaccine ulcer, as well as by convulsions, evidently due to infection through the wound; all these circumstances point to the strong probability of a tetanus infection in Cases 1 and 2, though trismus is not mentioned and evidently was not observed.

CASE 4.—Edw. K., 3½ years old. Never ill since early infancy. Vaccinated on or about May 15, 1879, by German midwife, with virus inserted at two points on the left arm. At one of these sites is a normal-looking almost dry crust, and at the other a highly inflamed ulcer from which the "crust had evidently been torn." Seen June 5 and found suffering with tetanus, from which he died before 8 a. m. the following morning. During the day he exhibited a peculiar expression of face, and an occasional elevation of his shoulders and arms culminating in a pronounced convulsion in which he fell from his chair to the floor. Two other spasms quickly followed. Sardonic grin pronounced and trismus extreme; several convulsions during the physician's visit. These recurred with increasing severity until death supervened.

CASE 5.—J. McL., aged 9, healthy personal and family history. Vaccinated Jan. 6, 1882, in Auburn, N. Y., with "bovine quill" virus, "other lymph from the same source had been extensively used with generally satisfactory results by the vaccinating physician." January 26, on going to bed, complained of stiff neck. Next morning he could not open jaws. During night had chills, and during day following pain at pit of stomach, shooting to the back and thence to the whole body, and accompanied by tonic spasms. When seen marked opisthotonos was present. On touching him "shooting spasms" pervaded all the contracted muscles, including the facial. Pulse 90, temperature 98.5 F.; mind clear. Vaccinated arm showed a large irregularly-shaped ulcer, one half covered with dark incrustations, edges excavated, large dingy granulations, bits of pus adherent. Arm swollen, with erythematous inflammation. Axillary glands enlarged and tender. No other lesion on the body. Had used a privy in an attached but unwarmed building, had "taken cold," and the symptoms of tetanus promptly developed. Death on 10th day from commencement of the tetanus. Lower limbs became somewhat involved in the tetanoid contractions, the upper not at all. Large doses of morphia were used. The physician states that there were many other severe ulcers from the use of the virus, but no other cases of tetanus.

CASE 6.—D. M., aged 40. Tall, healthy man. Vaccinated in Maryland, about the middle of January, 1882. Some days later exposed to cold. Arm soon became much swollen and the skin around the vaccine wound much inflamed. On February 8, when seen, exhibited a large deep ulcer, size of a silver dollar, and no other lesion was found on the body after a careful search. For several days had slight bronchitis and vague fugitive pains in the back. February 7, first noticed slight stiffness of jaw muscles. On the 8th could only separate teeth to a slight degree. Reflexes exaggerated, slight photophobia; considerable hyperesthesia. Pain from irritated region if skin is brushed. Body bathed in perspiration. Muscular spasms in lower extremities. February 9, convulsions were excited by breath of air or movements of patient's body. Marked trismus. Temperature 100.4 F., resp. 28, pulse 110. From this time on opisthotonos well marked. Coma on February 12; temperature 102 F., resp. 36, pulse 140. Up to death on February 13, slightest irritation produced convulsions. Constipation persistent. Treatment, chloral and potassium bromid in large doses.

CASE 7.—B. J., mulatto boy, aged 5. Vaccinated at Columbia, S. C., Feb. 9, 1882, on the left arm, and at the insertion of the deltoid. The virus was carefully selected humanized lymph. On March 8, one month later, he had pain in the stomach and inability to open mouth. When sitting his body and neck were bent backwards, the muscles of the back, chest, the masseters, internal pterygoids, were in a state of partial rigidity. There was incomplete trismus and some embarrassment of respiration. The ulcer was healthy-looking and painless. On March 10 the ulcer was "bathed in healthy pus," and the tetanus more pronounced. Trismus was marked and the muscles of the lower extremities involved paroxysmally. The boy lived 15 days, when death ensued. Treatment, potassium bromid, physostigma and chloral.

CASE 8.—Carlos C., white, aged 2, was vaccinated in the month of April in Cuba. The vaccination was successful and ran a normal course. Inflammation then commenced at the site of the vaccination pustule, converting the latter into an ulcer, which, when first seen, had burrowed deep into the tissues. There were typical symptoms of tetanus. No other lesion was to be found on the surface of the child's body. Large doses of chloral and laudanum were employed, but in spite of active treatment the child died on the fourth day.

CASE 9.—G. E. B. (from Report of Royal English Commission), was vaccinated by the public vaccinator by the arm to arm method, from a child whose vaccination ran a normal course. Six others were vaccinated from the same child, all running a normal course. On 8th day the vaccination appeared normal. No dressing is mentioned as having been used up to this time. On the 9th day redness appeared, extending about an inch around the vesicles. Later a bluish appearance, purulent discharge, and the arm was bathed with oatmeal water, dressed with zinc ointment on red rags, and a shield superimposed. The discharge was thick and offensive. On October 1 the mother poulticed the arm. Next day the mouth was "drawn tight." Marked tetanic symptoms followed, paroxysms of opisthotonos, in one of which the child died on October 5. Poultry and tame rabbits were kept in the yard, close to the door; and at a house one-half mile distant an infant, 10 days old, died about the same time from umbilical tetanus.

CASE 10.—Dionisio G., negro, male, aged 9 months, was vaccinated in Cuba at a municipal dispensary, on July 12, 1891. He was found in a cot covered by a dirty quilt, and the room and the walls and floor were covered with dirt. On the 16th the vaccination was successful. On the 18th, 19th and 20th he had a little fever, which soon entirely disappeared. During this time he continually crawled around the room and the yard on his hands and knees as usual. On the 31st of July he had a sudden convulsion, lasting but a short time; on August 1, another, at which time trismus was present. The characteristic and classic symptoms of tetanus rapidly asserted themselves, and the child died in 32 hours from the beginning of the attack.

CASE 11.—M. D. W., was vaccinated on Nov. 6, 1893; a white child, female, aged 5½ years. Strumous diathesis, with suppurating cervical adenitis. Child neurotic, of weak vitality, slight ailments always affecting her profoundly. Vaccinated with fresh ivory point of bovine virus, using alcohol and clean towel in preparation of the field of operation. The latter was covered with Lister's green protective and bandaged. On November 24, 18 days later, the wound was "not doing well." Vaselin had been taken from a partly used bottle, into which those who used it had dipped their fingers, and a quantity had been set aside in the closet for the purpose of dressing the wound. When first seen the child was indisposed, temperature 100.5 F. The ulcer on the arm was the size of a half dollar, deep, and contained a quantity of sanious pus of a very fetid odor. The child had been at play every day since vaccination, and had at no time suffered any inconvenience. Child now became depressed, thirsty, apprehensive, and had slight strangling attacks. On December 2 some rigidity of the cervical muscles and pains in the back. Constipated, with suppression of urine. Arm appeared healthy at this time, temperature and pulse normal. Aphthous stomatitis and several badly decayed teeth present. At midnight a convulsion, opisthotonos, apnea. Marked trismus of risus sardonicus. On December 4, typical convulsions. On December 5 râles at base of left lung posteriorly, and later in the right lung also. Six more slight convulsions and death followed. It was learned that the father had taken the child for a walk on November 30, and in the stiff breeze she complained of sharp pain in the "right throat," posteriorly to the angle of the jaw. She had at this time aphthous stomatitis, with ulcerative lesions on the lips and tongue.

CASE 12.—A. P., school-girl, white, and 7 years of age. Was vaccinated on Oct. 2, 1896, in Philadelphia, by one of the official vaccine physicians, who used upon this as well as the following case, "fluid vaccine" from Milwaukee. This vaccine was at a later time diluted with glycerine, but, according to the physician, this was not true up to the time of vaccination of these cases. No other cases of tetanus developed from its use to his knowledge. When first seen the site of vaccination showed a cup-shaped ulcer ¼ inch deep, ¾ inch wide, and 1 inch long, discharging pus, and the immediate vicinity slightly swollen and indurated. Trismus marked, temperature 100.5 F., pulse 120, resp. 20. On October 10 risus sardonicus also marked, and three slight convulsions. On the 11th opisthotonos extreme, temperature 101.2 F., pulse 120, resp. 36. From then until the 15th the same condition, with profuse sweating. Opisthotonos relaxed at this time, but returned upon the slightest disturbance. Muscles of abdomen, chest, and all of the extremities in marked contraction, and continually bathed in cold perspiration. Perfect control of urine and feces and was fed by means of small rubber catheter, and for a few days by nutrient enemata. On the 17th patient was able to open mouth ¼ inch, tongue very swollen and coated and a terrible stench coming from the mouth. Trismus gradually relaxing. On the 26th, tongue much swollen and covered with mucous white ulcers about the size of a dime. Gums swollen and spongy; slight bleeding. On November 2 there had been a pustular eruption on the face, neck and buttocks for two days, which now spread to the arms and thigh, and was quite painful. Several crops appeared in the next two weeks. By December 1 the child was perfectly well. The treatment was local antisepsis, together with the use of chloral and bromids. On October 10 two coverslip spreads from the wound showed large numbers of staphylococci and streptococci. No cultures were made.

CASE 13.—E. S., white, male, aged 8. Vaccinated October 3, by the same physician, and with the same fluid vaccine. Until then perfectly well. When seen on Oct. 23, 1896, the boy was slightly feverish (101 F.), resisted inspection of the throat, which was persisted in, however, and a whitish, more or less necrotic appearance noted. The tonsils and uvula were swollen. The masseter muscles were contracted and there was present the risus sardonicus, when he tried to contract the muscles of expression. The reflexes were active, the muscles of the neck and the back stiff. A culture was taken from the throat and a mixed growth of diphtheria bacilli found, of virulent type, causing characteristic postmortem appearances in guinea-pigs. The child's arm about ten days after vaccination had become ulcerated in appearance and had grown steadily worse since that time. When seen was necrotic, a depressed ulcer being present with some purulent secretion. Antitoxin was administered on the next day. Frequent convulsions had occurred during the night, sleep intervening. Temperature 100.4 F. Condition on the following day the same. Trismus extreme. Mouth foul. This condition continued until October 30, when he became more relaxed, and on October 31 he could open his mouth slightly and take a little food. Recovery was slow, but eventually complete.

CASE 14.—A. K., private in 3rd Nebraska Regiment, 1st Division, 7th Army Corps, U. S. A. Died at Havana, Cuba, in 1899, "from tetanus resulting from infection from vaccination." No details of the clinical history obtainable, and evidently no record preserved.

CASE 15.—C. R., colored soldier, private, Company A, 24th Regiment, U. S. I. Vaccinated July 17 with glycerinated virus. Careful asepsis at time of operation. August 3 reported at sick-call, complaining of pain in his neck and stomach. Had been sick all night. Diagnosis of tetanus made on August 4, when trismus was marked. Convulsions appeared, increasing in frequency until they occurred every two minutes at 11:30 a. m. Temperature at 1 p. m. 99.6 F. Could not swallow. Retention of urine. Ineffectual attempt at passing catheter over two strictures. Hot water bags produced voluntary micturition later. Convulsions and opisthotonos almost continuous until death occurred at 1:30 a. m., on August 5. The vaccine wound presented throughout an ulcer half the size of a half dollar, with no surrounding swelling or injection of the tissues. The patient was conscious at all times, and complained of great pain in the neck and abdomen. Temperature at time of death 107.4 F., and one-half hour later 108.5 F. The treatment consisted of large doses of chloral and morphia.

CASE 16.—Female, aged 10, white, was vaccinated in Brewster, New York, about Oct. 1, 1899, aseptically and with glycerinated lymph. The reaction was severe, with much pain and swelling from the fourth day after the operation. Three days before the development of the tetanus these symptoms had greatly increased. The physician states that there were three sources of infection other than the vaccination, of which the most probable was the application of fish lard exactly 18 days after the vaccination, and synchronous with the exaggeration of the inflammation. The case ran a typical course of tetanus and terminated fatally.

CASE 17.—Native Porto Rican child, male, was vaccinated by the American authorities during 1899, in San Juan. The tetanus appeared a number of days after the child was vaccinated. The virus was on a dried point, and had been produced at a vaccination station established by the military government of the island. "The case received thorough investigation, with the conclusion that the vaccination primarily had nothing to do with the secondary disease." Unfortunately the records of this case were lost, but Lieut.-Col. Van R. Hoff writes in a personal communication: "Among the details that had to be considered was the question of secondary infections which are very apt to occur in tropical countries, especially tetanus, which you will observe by looking at the records of the Superior Board of Health is the cause of considerable mortality in Porto Rico. It was determined to investigate every case reported. The one referred to . . . was the only case brought to our attention . . . As to source of infection, the lower classes in Porto Rico are no more cleanly than elsewhere, and very little care was taken by them to keep the parts clean. Asepsis was followed in the operation, but it is not believed that it was maintained and secondary infection might have occurred in many ways. The patient died." About a million vaccinations were executed during the period referred to (1899-1900) by the American military authorities in Porto Rico. In investigating the question of possible cases in the records of the War and Navy Departments the following reply was received to an inquiry on the subject, from Surgeon-General Rixey, of the U. S. Navy: "During the last five calendar years there have been three cases of tetanus in the naval service, and one death from that cause. None of these cases was associated with vaccination. In accordance with U. S. Navy Regulations, each person is vaccinated immediately on enlistment. During the last five years there have been 63,465 persons enlisted in the Navy and Marine Corps. . . . During the last five fiscal years there have been distributed from this bureau 70,253 vaccine points. Additional virus has been obtained from time to time, in emergencies, by cruising ships on foreign stations."

The cases cited in this series include the few cases recorded in the files of the War Department, of tetanus following vaccinia.

CASE 18.—M. E. A., female, aged 8, was vaccinated about Nov. 27, 1900, with ivory points, in Paris, Tenn. At the same time several other members of the family were vaccinated, and all had very sore arms. There was no other case of tetanus in the family. The scab was knocked off from the child's arm by a schoolmate, and the mother dressed the sore "with some wadding removed from an old quilt, and this cotton was allowed to remain on the arm until the tetanus was discovered (10 days)," about three weeks after the vaccination. Tetanus antitoxin was ordered from Memphis, but never used. The case died.

CASE 19.—Male, white, aged 8, was vaccinated Jan. 3, 1901, with glycerinated lymph at Kalamazoo, Mich. Aseptic precautions used at time of operation, and shield used until the arm was dry, when it was removed and the mother instructed to keep the clothing clean and use no dressing. The vaccinia was normal until the 14th day, when the scab was torn off at school. The ulcer was filled with watery granulations, and there was considerable watery discharge. Mother now instructed as to aseptic dressing, but the instructions were not carried out. On January 27 tetanus developed. The arm was found in a filthy condition, also the shirt-sleeve over it. There was no dressing over the ulcer, which was filled with unhealthy granulations. Symptoms of tetanus were classic. Slight improvement followed the use of antitoxin. Morphin and chloroform also used. The boy died on January 31, five days after the first symptoms of tetanus. Twenty-four days had elapsed from the date of vaccination to the development of tetanus, and ten days previous the scab had been torn from the wound.

CASE 20.—Female, aged 21, was vaccinated unsuccessfully. Revaccinated on the leg on March 8, 1901, with calf's lymph supplied by the Health Board of the City of Glasgow, Scotland. The limb was carefully cleansed and after the operation a "large adhesive thick felt or bunion plaster was then applied around the vaccination mark, and was kept in position by a strip of adhesive plaster." The vaccination was successful, though the symptoms were quite insignificant. On the 18th she experienced a severe draught, complaining at the time. On the 20th pain in the back and stiffness in the neck and jaws. No sore throat. Adhesive plaster had never been removed since the first application (13 days), and when crust and plaster were removed the ulcer did not look particularly healthy." Covered by a grayish-colored slough and a discharge of thin, dirty yellow pus. Bread poultice used, and on the 21st day the wound healed completely. March 22 the jaws became stiffer, till by evening the patient could only open them with difficulty. Head distinctly retracted, much rigidity of the muscles of the neck, and some of muscles of the abdomen. Hysteria considered, but no stigmata found. Temperature normal, pulse 68, and regular. Varying improvement and retrograde until the 24th. Feet then so strongly flexed as to continue the line of the legs. Consultation with Sir Hector Cameron and Prof. T. K. Munro, and diagnosis of tetanus made. Until end of April intermittent fever and gradual improvement. April 6-22, spasms of muscles upon any sudden movement. Could not chew owing to rigidity of jaws. Sat up in bed by the end of the first week in May. Trismus was the last symptom to disappear. The arms were never involved. Perfectly well by the end of June. Treatment by means of large doses of chloral. This was the only patient of a large number vaccinated on the same day to develop tetanus.

CASE 21.—Mary E. R., white, aged 12, was vaccinated for the first time in her life in Burlington, Vt., with dry points. Tetanus developed on Oct. 21 (vaccinated Oct. 2), 1901, and several days prior to its appearance the girl had assisted in taking up and potting plants from the garden, although with a large angry ulcer at the site of vaccination. Dr. B. H. Stone, bacteriologist of the State Laboratory of Hygiene, cultured six samples of earth, taken from various streets, alleys, and gardens of the city. From all, and from the garden earth at the residence of this case, pure cultures of the tetanus bacillus were obtained, "which killed white mice in several hours. The animals developed typical tetanic spasms."

CASE 22.—Female, also aged 12 years, and never vaccinated before. Vaccinated on the arm with dry points in Burlington, Vt., in October, 1901. Twenty-one days later tetanus developed. This girl also had a large ulcer at the site of vaccination, and neither she nor the preceding case "had the vaccination wound protected until some time after a scab, which had formed, had been removed, accidentally or otherwise, and then the dressing was done at home." These were the only cases among over 8000 vaccinations in the town with the same virus. The culture experiments noted in the last case were made in reference also to this.

CASE 23.—F. I. K., white, female, aged 11 months. Vaccinated at Rosemont, Pa., 28 days before she was seen by the writer. A sister was vaccinated at the same time and had a severe ulcer, but tetanus did not develop. The father is a coachman, and the family lived over a stable. When first seen the wound was angry and foul smelling. The inflamed area corresponds closely to that covered by the shield, which had not been removed since the vaccination. No dressing had been worn over the perforated shield. Symptoms rapidly increased, in spite of large doses of carbolic acid, used hypodermically, and antitoxin administered within the first 24 hours and repeatedly after. Chloral and bromids were also used in full doses. Trismus was marked, opisthotonos almost continuous and the child died in a convulsion 36 hours after the beginning of the attack. The wound, which was thoroughly curetted, was full of indurated tissue and covered by a mass of coagulated pus and lymph. Cultures gave a profuse growth of staphylococcus albus on all the media. No growth of the anaërobic bacteria could be obtained. (This case has been reported in full at a previous date.)

CASE 24.—W. J. B., male, white, aged 7, vaccinated in Camden, N. J., on Oct. 12, 1901, with glycerinated virus, marked good until Dec. 26, 1901. Aseptic care was used in the operation. About November 1 the scab was lost off while at play, and, according to his playmates, he picked it up from the ground, replaced it in the wound, and bandaged or tied it in place. Tetanus developed on November 1. Trismus and opisthotonos were present; the case grew rapidly worse and died Nov. 3, 1901. The boy's brother was vaccinated with the other half of the virus from the same tube, and at the same time. His vaccination was successful, and ran a usual course free from tetanus.

CASE 25.—L. E. C., female, white, aged 16, vaccinated in Camden, N. J., on Oct. 14, 1901, with dry points, marked good until Dec. 10, 1901. Asepsis was observed in the operation. A shield was worn and allowed to remain in place until it became glued fast to the surface with the excessive discharge. There was an open sore, large and irregular in shape. Trismus appeared on Nov. 8, 1901, and at first the tetanus seemed to run a mild course. After a short time the symptoms increased in severity and the patient died with opisthotonos and convulsions on Nov. 15, 1901.

CASE 26.—E. S., female, aged 6, vaccinated with glycerinated points on Oct. 19, 1901, at Rosemont, Pa. Aseptic care used during the operation. A shield was applied perforated in the surface to admit the air. The father was a stableman, and the house adjoined the stable. The child had been playing continually in the garden, and had been seen with a playmate shortly before, both throwing earth at one another. Tetanus appeared on Nov. 10, 1901, and convulsions began the next evening. The next day well-marked stiffness in the jaws and back of the neck. Symptoms all increased, with locked jaw and opisthotonos, and death from exhaustion on November 19. The vaccination wound was clean, granulating and healthy, during the nine days of illness, and during the same time there were present two decayed and bleeding teeth and a stomatitis that was almost gangrenous, that had been neglected. The treatment consisted of the usual depressomotors and no antitoxin. The same physician had attended ten cases of tetanus (no others in the course of vaccinia), of which four were treated with antitoxin, two recovering and two resulting in death. Of the remaining six (treated without antitoxin) only the case under discussion failed to recover.

CASE 27.—A. M. W., white, female, aged 11, healthy and of large build, was vaccinated on Oct. 19, 1901, with glycerinated tube lymph, marked good until Dec. 10, 1901. Residence, Camden, N. J. Aseptic care employed in the operative procedure and a papier-mache shield superimposed and left in place until October 26. The wound then looked healthy, the vaccination appearing normally successful. She was next seen by the physician on November 6 (17 days after vaccination), when she appeared very nervous and excited. She had headache, and back and limbs were sore, with sharp lancinating pains in the neck, masseter muscles and the larynx. On attempting to eat a piece of candy shortly before she had a spasm of the facial muscles. The vaccination wound was purplish red, soft and boggy, and had a hard core in its center. A thick sanguinous discharge was oozing from the ulcer. The core was removed and found to be about a half inch in depth. The shield had been discarded seven days before and a coarse rag tied on the arm. November 8 frequent localized convulsions, and later of whole body. During the evening of this day coma set in. Many severe convulsions and almost continuous opisthotonos through the night. Complete loss of control over the bowels and urine. Death

on November 9 in terrible agony. Treatment, potassium bromid, chloral and morphia.

CASE 28.—J. G., male, white, aged 11, was vaccinated in Bristol, Pa., on Oct. 19, 1901, with tube virus. Aseptic care of the operative surface, but no care taken with the wound subsequently. Playmates state that patient, while refereeing a game of basketball on November 9, took the bandage from his arm and threw it on the ground, afterwards replacing it upon the arm. The ulcer had been very severe from the beginning, but when seen on November 10 in Philadelphia, where he was taken for treatment, it was badly infected. Tetanus had appeared 24 hours previous. The actual cautery was applied and formalin injections used, and on the following day intracerebral injections of antitoxin were resorted to. There was marked and almost continuous opisthotonos and severe convulsions followed the slightest disturbance. Death took place on November 11, about 28 hours after admission to the hospital.

CASE 29.—B. R., female, white, aged 7, was vaccinated in Camden, N. J., about Oct. 1, 1901, with dry points, and upon the left arm. Her sister, also a child and two other children, were vaccinated at the same time and with the same virus. All four had severe and deep ulcerative processes, one requiring six weeks before it healed, another about nine weeks, and a third not having completely healed at the time of writing this record (over five and one-half months). The patient's arm was equally inflamed. A shield was applied over the wound and retained in place for three weeks. The arm was then so swollen and inflamed that the shield was removed, a deep ulcer being present, discharging fetid pus. At this time an attempt was made to care for the wound aseptically, with a boric acid wash, and an ointment applied. At one time a flaxseed poultice was applied, and over the wound linen rags were placed after boiling. Instead of healing the ulcer burrowed deeper, and seven weeks after vaccination the mother noticed at dinner time that the child's mouth would not open properly for the reception of food (Saturday). On the same afternoon, however, the patient walked to the center of Camden (two miles) to have her picture taken. She slept poorly through the night and next morning could not walk straight. Stood "like an old woman" as she herself said. On the following day, while lying on the sofa her back suddenly arched and she had a severe convulsion. At this time the jaws were tightly locked and the muscles of the back and neck were rigid, as also those of the abdomen. Opisthotonos was not constant, but increased in frequency throughout the week, with occasional convulsions until Saturday (the 8th day) when she died. The mind was clear during the entire period, and just before the final convulsion she talked with her mother. She was fed throughout by enemata. Antitoxin was not used. During the time from the vaccination to the development of tetanus there was neither an abrasion of the skin at any other point on the body than the vaccine sore, nor even a decayed tooth. The child had always been healthy and well since infancy, when she suffered from malnutrition. Her mother attended the child during the time of her illness and gave the above intelligent and clear statement. The physician refused all information on the subject, so that the treatment could not be learned. Case 35 occurred within a few streets of the home of this case.

CASE 30.—A. B. C., white, female, aged 8, was vaccinated in Camden on Oct. 21, 1901, with glycerinated tube lymph. A papier-mache shield was used continuously until the 28th, when a fresh shield of a different pattern was applied. The vaccination then appeared healthy. During the evening of November 11 she called at my office and complained of headache, feverishness, etc. Did not sleep well during the night. Next morning was nervous, had pain all over body, and especially in the muscles of the back of the neck. Next morning there were trismus, opisthotonos, and convulsions rapidly increased in severity until 7 p. m. She then became unable to swallow and was fed by enemata. She died in a convulsion shortly before 3 a. m., on November 14. The treatment employed was counter-irritation along the spine, morphia, and four injections of antitoxin (each 500,000 units). Nitrite of amyl was also used. Her schoolmates state that the patient frequently fingered the wound, and exhibited it to them.

CASE 31.—W. B., white, male, aged 16, was vaccinated in Camden, N. J., on Oct. 14, 1901, with glycerinated virus, marked good until Dec. 26, 1901. Asepsis was employed in the operation. A shield was applied and had not been removed nor the arm cleaned until he complained of stiff neck on Nov. 4, 1901. This shield was a simple bunion plaster. When seen the arm was swollen, and the wound was dry and black, emitting a bad odor. The wound was curetted and dressed. Opium and the depressomotors were used, and later antitoxin. The physician who vaccinated the patient stated that the latter was not well when the operation was done. He also denies that the case was one of tetanus. According to the attending physician, who reported the case, the symptoms were unmistakable, including trismus, convulsions, incontinence of urine, and subsequently marked paralysis of the limbs. After four days the trismus relaxed and convalescence was steady from that time.

CASE 32.—E. H., male, white, aged 11, was vaccinated in Camden, N. J., on Oct. 23, 1901, with glycerinated points. Asepsis was carefully followed throughout the operation. No dressing had been used over the wound, and when seen on November 13 there was a large ulcer on his arm, the size of a half dollar, and in this was matted the sleeve of a new merino gray shirt that had never been washed. The shirt had been worn since the 13th, and no care had been taken of the wound. On November 11 the boy said to his father that his jaws seemed stiff. He slept all night, but in the morning felt stiff all over. His mother carried him down to breakfast. About one hour later she noticed that his head was drawn back, though he could talk plainly. He was seen by the physician about 10 a. m., on November 12, at which time trismus was so marked that he could barely get his tongue between his teeth, and could not talk. Convulsion soon set in, with marked opisthotonos, and the boy died at 4:30 a. m., November 13. Treatment, chloral and bromids. Rectal feeding.

CASE 33.—F. C., white, male, aged 5, was vaccinated in Camden, N. J., on Oct. 25, 1901, with glycerinated tube virus. Aseptic cleansing of the arm was carried out. For a greater part of the time no dressing had been worn upon the wound. About a week before the development of tetanus the boy had ridden on an ice wagon and had torn his arm upon the ice hook. Neither this wound nor the vaccine ulcer was attended to properly. The case was first seen by the physician on the evening of November 8, when he complained of a stiffness in his cheek muscles. He was seen again at 5 a. m., next morning, when the symptoms of tetanus were distinct. The case was unusually severe with opisthotonos and convulsions from the start, and died at 3 p. m., of the same day. The boy's home was within a few feet of a stable, not very clean, where he played much of the time. His brother, three years his junior, was vaccinated at the same time, and with the same virus; the vaccination was successful and gave no bad results.

CASE 34.—M. W., white, female, aged 8, was vaccinated in Camden, N. J., on Oct. 26, 1901, with glycerinated tube virus, marked good until Jan. 5, 1902. Asepsis had been employed in the operation. The vaccination had taken, but never was severe and when called to see the case the physician found the vaccine wound entirely negative. This was on November 15, at which time tetanus was well marked by trismus, rigidity of the muscles of the neck and jaws, as well as of the abdomen. The case ran a mild course, however, and has since slowly recovered. No information can be obtained as to the treatment.

CASE 35.—G. O., colored, female, aged 9, was vaccinated in Camden, N. J., on Oct. 26, 1901, with dry points (statement also made in another report of Camden Health Board that the virus was in the form of glycerinated points), and asepsis was observed in the procedure. The vaccination was done at the City Dispensary. No dressing was worn over the wound for most of the time. The vaccine wound was a severe one, but when seen by the physician it had a healthy appearance, though still open and discharging a mucopurulent material. There was also an open sore on the inside and corner of the lower lip. The case at first ran a mild course, though there was marked trismus and rigidity of the neck and facial muscles. Depressomotors were used and the case seemed to respond to treatment until November 26, when active convulsions appeared and the child died during the course of the morning. The patient's brother was vaccinated at the same time and with the same virus and had no bad results, though the vaccination was successful. Case 29 occurred within a few streets of the above.

CASE 36.—F. H., white, female, aged 4, was vaccinated in Philadelphia, on October 26. A tube of glycerinated virus was equally divided between the arm of the patient and that of an older sister. The latter had been successfully vaccinated four years previous and the revaccination was of no effect. The patient was healthy at the time of vaccination. Her home is a brick house without a cellar, and connected with a stable by a single door. Both the stable and the house are untidily kept. In 5 or 6 days a typical vesicle formed and the vaccination ran a normal course. On November 13 (18 days), when seen, the wound was not scabbed over; was angry looking; and there was a small surrounding zone of inflammation. Patient complained of pain in the thigh, muscular rigidity in the neck, back and thigh, and great fear that she might get her tongue between the teeth and bite it off. Opisthotonos was pronounced over portions of two weeks, the muscular rigidity and contractures remaining much longer. Recovery was not complete until some time during the latter part of December, when she was active and well. The treatment included the use of local measures, as well as bromids and opium. No antitoxin was used. This was the only case among a large number of vaccinations to develop tetanus.

CASE 37.—H. P., white, male, aged 7, was vaccinated in October, 1901, at the Atlantic City Hospital, N. J., with glycerinated virus. A shield was applied and worn three days. A rag was tied around the arm. The child played constantly in an adjacent yard where a house-mover kept his lumber, some of which was in a bad state of decay. When seen the vaccine sore was not particularly in evidence, the pain and soreness being entirely confined to the lumbar region. On the second visit the stiffness of the jaws and neck were marked. He was then removed to the hospital (22 days after vaccination). Opisthotonos grew very marked with repeated convulsions, until the child died on the third day after admission. The treatment consisted of antitoxin injections, chloral and bromids.

CASE 38.—A. T., Jr., white, male, aged 12, was vaccinated in Bristol, Pa., on Nov. 3, 1901, with glycerinated tube lymph. A shield was placed over the scarification, but allowed to remain for days until it finally became filled with the discharges from the sore. The shield was finally removed and a fresh one applied. With the shield came away a large quantity of pus and also the scab. The next day the jaws were set (November 24). At this time there was a deep ulcer at the site of vaccination. The tetanus was severe, with opisthotonos; muscular rigidity that was quite general, and convulsions. Trismus lasted without intermission until death on November 27. There were no other lesions on the boy's body at any time after vaccination up to the time of death. Cannabis indica was used in large doses, but with no benefit. No antitoxin was used.

CASE 39.—J. T., white, male, aged 10, was vaccinated Nov. 4, 1901, with glycerinated points in Bridgeton, N. J. No dressing was used and on November 22 the scab came off, the dressing from this time on being a rag. His playmates state that prior to the loss of the scab it had been his habit to pound the arm violently with his fist, apparently to show them that it did not hurt. It was also his habit to finger the wound and exhibit it to his playmates. He had at first worn a shield, which had not been entirely removed nor the arm cleansed until the scab came away (22 days). Directly in the rear of his house is a stable, about 40 feet away, where there is a horse kept by the father of the boy, and where the latter sometimes played. Tetanus first appeared on November 27 (23 days after vaccination). Trismus on the next day was well marked and the general appearance of the boy was one of distress and anxiety. At first the case seemed of the subacute type. The closure of the jaws was never complete, and the patient was able to take food until 24 hours before death. On the day before death there was a sudden exaggeration of all the symptoms, and in the frequency and length of the convulsions. Death occurred from exhaustion on the evening of November 30, about 5 days after the onset of the initial symptoms. The treatment comprised carbolic acid injections, and large doses of chloral and bromids. No antitoxin was used. This was the first death from four or five thousand vaccinations in the city.

CASE 40.—A. H., white, female, aged 13, was vaccinated in Camden, N. J., about November 4, by a sergeant of police (also said to have been by a druggist). Form of virus not known. Trismus, and rigidity of neck and body were very marked. There was an ulcer at the site of vaccination about the size of a quarter-dollar-piece, with a thin layer of pus on the surface. Induration ½ inch in all direc-

tions. Tetanus developed on November 25, trismus being marked and the contractures and spasms violent from the beginning. The child died on the following day (November 26) in a convulsion. The child had been washing dishes a few days after the vaccination with her sleeves rolled up, had then played with the dogs (kept in the house) on the floor, and then dressed her wound (herself), as usual, with a rag. This was not an unusual performance. The entire indurated area, with the ulcer, was excised, the parts disinfected as far as possible, and the patient injected with 5,000,000 units of antitoxin above the wound and in the back. Bromids and chloral were also given, but with no effect, death taking place in 36 hours.

CASE 41.—Mrs. A. D., white, aged 24, was vaccinated in Philadelphia about Dec. 9, 1901, with glycerinated tube lymph. Her arm became very sore and a crust formed at the site of the vaccination. The physician did not clean the arm, and heated his scarifying needle over a common lamp, according to the story of the patient. No dressing was applied over the wound. Seen for the first time on Jan. 1, 1902, at St. Joseph's Hospital, a large ulcer being present at the site of vaccination. No other lesion on the body. One week ago the muscles of the back became tender, though not stiff at that time. Four days ago the muscles of the back and neck were tender and rigid, and one day later the muscles of the jaw were fixed. There was on January 1 rigidity of the localities mentioned. Muscles were in a constant state of contraction, with occasional aggravation of the continuous spasms. No anesthesia or hyperesthesia. Visual field slightly contracted. On January 4 the abdomen was distended and its muscles rigid. January 6 to 9, clonic spasms greatly decreased. Muscles of the back of the neck rigidly contracted. Could almost open mouth to full extent. Heavy antitoxin dosage. Developed erythema of chest and legs, also a few pustules scattered over the surface. January 11, 12 and 13 showed a steady though slow convalescence. Slightly delirious at night. Left the hospital against advice Jan. 14, 1902. Treatment consisted in the use of antitoxin, chloral and bromids.

CASE 42.— ——, white, aged 8, was vaccinated in Chicago during 1900, with "city virus." An investigation of this and of the following case showed that the children had badly infected arms from lack of care and cleanliness. In this case a narrow bandage was placed around the arm, by the mother, soon after the child was vaccinated, and allowed to remain until the sore and bandage became so offensive to the smell that they sought the advice of a physician, who dressed and cleaned the arm. This was five weeks after the performance of vaccination. A few days later tetanus appeared. Ten thousand other children were vaccinated with this same lot of vaccine without any bad results.

CASE 43.— — —, white child, was vaccinated in Chicago, during 1900, with "city virus." Three other children were vaccinated in the family at the same time and with the same lymph, all had typical vaccinations and no bad results. The bed in which this child slept was filthy, and the arm was infected through a total want of cleanliness. The vaccine lymph is tested by the Chicago Health Department, both as to its potency and its purity in the department laboratory before using. A number of other cases occurred at the same time in children who had not been vaccinated.

CASE 44.—Miss S., adult, white, vaccinated in 1901, in Cleveland, with glycerinated lymph. Careful aseptic precautions were taken, and a shield was applied. Tetanus developed on the 15th day following vaccination and terminated fatally. The physician had many other very severe wounds from this lymph, but no other cases of tetanus. Antitoxin was used in large doses, but to no avail, the patient dying on the 7th day.

CASE 45.—E. T., white, male, aged 6, was vaccinated on Feb. 1, 1883, in Auburn, N. Y., by the City Health Board. Twenty days later (February 20 and 21) he had headache, stiffness in the neck and back, and spasms with grimacing and setting of the jaws. Pain in the stomach. The vaccine ulcer when seen was ½ inch in diameter, had clean-cut edges, and an inert surface. Patient for some days had had pains in front of arm and forearm, and lately cramps in this hand. Feverish and tendency to urinate frequently. Had slept none since the 20th. Temperature in axilla 102.3 F. From this time stiffness of the jaws continued. Convulsions every 15 minutes, at which time jaws were firmly set, opisthotonos present, and child screamed with pain. Upper extremities not involved. Calomel and whisky in large doses had a marked quieting effect. In 36 hours patient took about two quarts of whisky. Became rational, had no more severe convulsions, though there was a tendency to twitchings unless the whisky intoxication was pushed. On February 25 was rational. Hand was cramped and little finger and thumb crossed. Symptoms of needles sticking him in temples and pain in top of head. Then gradual subsidence of all symptoms. Coarse râles over both lungs. Extreme exhaustion and long, tedious convalesence until March 12, when complete recovery seemed sure. In May, 1882, this patient had been treated by the same physician for tetanus following a wound in the foot. He was treated in the same manner with complete success. Both attacks were severe until the intoxication was secured by means of the whisky.

CASE 46.—"Case of tetanus after vaccination was seen by me, 7 years ago and in consultation. The tetanus developed a couple of weeks after inoculation. The vaccination wound was large and ugly-looking, with much swelling. The child was a boy of about 10 to 12 years, and gave all the usual symptoms of tetanus, and died in the third week after vaccination by bovine lymph. Of course, cleanliness was not then well understood and bacteriology in its infancy."—(Letter from consulting physician.)

CASE 47.—J. H., male, white, aged 38, an inmate of the insane department of the Philadelphia Hospital, was vaccinated on Nov. 18, 1901, with dry points. No dressing could be kept in place over the wound. On November 19 the arm was swollen red and painful, with a necrotic patch in the middle of the site of vaccination. This was excised and the arm dressed. November 25, difficulty experienced in eating breakfast. When examined at this time the jaws opened about one inch with difficulty, neck stiff, and back rigid. Area of vaccination excised and cauterized. Condition became rapidly more pronounced during the day, and swallowing impossible. Fed by rectum. Treated with carbolic acid, cocain, atropin, and morphia. Urine drawn by catheter. Temperature 97.4, pulse 93, and respirations 24; ranged to 98.4 F., 109 and 30. November 26 (1:30 a. m.), had first convulsion, and five more before 6 a. m. Then a series of lighter spasms, and death at 8 a. m.

CASE 48.—L. B., male, white, aged 45, an inmate of the same department, was vaccinated on Nov. 8, 1901, with dry points, the vaccination being successful on the 14th. November 26, patient was reported with swollen painful arm. The dressing had been worn for a short time only. Necrotic patch in center of vaccine ulcer, greenish in color. Wound cauterized and dressed. Antitoxin (1,000,000 units) given as immunizing dose. November 27, a. m., jaws stiff, less and less controllable, and soon immovable. Neck stiff same evening. November 28, neck rigid, jaws rigid and ½ inch apart, abdomen tense. Swallowing almost impossible. Risus sardonicus present. Antitoxin (3,000,000 units) at 9 a. m., and again at 2 p. m. During the next 36 hours 16,000,000 units were given. Fed by rectum. Rallied only once after injection of serum. Constipated; retention of urine which showed evidence of nephritis. November 29 two convulsions, each about ½ minute in length. Died from exhaustion at 6:15 a. m., on November 30. Total antitoxin used 25,000,000 units.

CASE 49.—John W., white, aged 6, was vaccinated in Massachusetts on Sept. 10, 1901, under strict aseptic precautions. A light gauze sponge and a gauze bandage were applied, and strict directions given to return the child if the arm became sore. Three weeks before the physician was called to see the child he had a fully developed attack of tetanus. Attempts to discover the anaërobic germs in cultures and on the coverslip failed. There was a large ulcer, bathed profusely in pus. The arm had been grasped by some one during the second week following vaccination and the pustule broken. The mother had also substituted for the dressing one of her own, and when the child was seen the dressing had not been changed for a week, was "soaked in pus, stinking and dirty in the extreme." The tetanus symptoms continued at first with severity in spite of the use of antitoxin, but at length subsided and the boy slowly recovered. From the same lot of virus 40 children were vaccinated, of whom the only one to develop tetanus was the above. No other lesion or cause of entrance of the micro-organism could be found.

CASE 50.—M. McG., white, female, aged 5, was vaccinated on the arm with glycerinated points on or about June 7, in Philadelphia. No dressing was worn over the wound which was soon covered by a scab. The latter had been scraped off in some manner not ascertainable, and when seen by the physician there was a large suppurating ulcer at the site of vaccination. The arm had been very painful and much inflamed for some days. Tetanus developed on June 29, a. m., and the symptoms were very severe from the start, including trismus, rigidity, opisthotonos, and severe convulsions. Thirty-six hours before death (10 p. m., June 30) the child could walk, but complained of being stiff. Antitoxin, chloral, and bromids were used, but without seeming effect. The child lived near and played often in a stable. The autopsy showed no other lesion on the body. Congestion of the spinal cord was noted, but no other pathologic change was evident.

CASE 51.—M. K., white, male, aged 31, an inmate of the insane department of the Philadelphia Hospital, was vaccinated on Nov. 11, 1901, with dry points. Vaccination successful November 28. Dressing was retained on arm for short time only. On December 4 patient had stiffness of legs, and discomfort in eating breakfast. No stiffness of neck, but jaws could only be opened about one inch. While getting into bed had first convulsion, with opisthotonos. Sodium bromid and carbolic acid were used throughout the day (the latter gr. ii, hypodermically). Morphia and atropin hypodermically. During December 4 abdomen and back more and more rigid. Retention of urine. Two convulsions during the night. December 5 to 8, condition about the same, urine showing presence of carbolic acid. On December 9 jaws opened wider (1¼ inches). Abdomen very rigid. Patient exhausted. Pilocarpin ointment rubbed into loins. General condition better. December 14 jaws again stiffer, general condition the same. Lungs becoming involved. December 17 to 19, delirious at times and while being examined had acute maniacal attack, with an epileptiform convulsion, cyanosis, and death with a temperature of 99.2 F. The autopsy showed passive congestion and edema of the lungs. Slight broncho-pneumonia of the right side. Parenchymatous nephritis. Hydronephrosis with dilatation of both ureters. Nutmeg liver. The left (vaccinated) arm showed an ulcer surrounded by a livid area. No other marks on body.

CASE 52.—J. McC., male, white, aged 38, inmate of same department, was vaccinated on Oct. 27, 1901, with dry points of a different production from those used in the other three cases. Vaccination successful on November 2. Dressing had been worn for short time only. On November 12 was sent to the ward with a painful, swollen arm, the vaccine wound angry with a dark, gray slough in the center. Slough excised and arm dressed. Arm at this time slightly stiff. On November 15 marked stiffness or arm, jaws, but not of neck. No fever, no convulsion. Antitoxin (2,000,000 units). Wound again excised and cauterized, and curetted. November 16 antitoxin (4,000,000 units) at 10 a. m., and again at 12 m., 4 p. m., and 7 p. m. Carbolic acid hypodermically. During night of November 16 jaws tightly locked, the neck stiff, and swallowing almost impossible. Urine showed albumin and casts retention. Had three convulsions on the 16th and died at 12:05 a. m., on the 17th. All the convulsions were characteristic of tetanus. Total antitoxin given was 18,000,000 units, carbolic acid grain 1, and cocain grain 1. The patient had worked every day in a yard the soil from which had previously given a culture of tetanus bacilli. He admitted often scratching his vaccine sore.

The above series does not include 18 cases that had "stiffness of the neck and jaws with a bad arm and whose symptoms disappeared under full doses of serum" that occurred also in the Philadelphia Hospital, and at about the same time. Two of the cases were in resident physicians who even excised their vaccine wounds. The symptoms were indefinite and may or may not have been tetanus, but in all probability were not. The writer saw such a case in a student who applied to him several days after vaccination with seemingly increasing stiffness of the jaws. He had read of some of the foregoing cases

and was convinced that he was also a victim. He was given a large immunizing dose of antitoxin at his own request and the symptoms rapidly disappeared. This case was also probably not one of tetanus, and in any event it is improper to include such in a serious analysis of the disease.

(To be continued.)

GLIMPSES OF THE PRACTICE OF MEDICINE AND SURGERY IN BRITISH AND SPANISH HONDURAS.

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(Concluded from page 1081.)

SPANISH HONDURAS.

Puerto Cortez, the principal seaport town on the Atlantic side of Spanish Honduras, is reached from Belize by boat in twelve hours. On the downward trip the steamers of the United Fruit Company make a short stop at Port Barrios. The larger part of the voyage is made in what is practically an inland sea made by the numerous islands, or keys, as they are called, situated some distance from the coast, constituting as they do a broken seawall. Port Barrios is a small dilapidated village notwithstanding it is the Atlantic terminus of the Guatemala Railroad. The cornerstone laid for a public building by the late General Barrios remains as he left it, but is beginning to show the effects of the ravages of the elements and the gradual decay of old age. Puerto Cortez is a strange little city, lining as it does the shore for more than two miles. It has only one street, which serves as a public highway and roadbed for the Honduras Railroad and mule cars. It has the bay in front and mangrove swamps in the rear. The population is made up of a few whites, negroes, Indians, Caribs and a mixture of the different races, the negro element being the predominating one.

Honduras is the largest of the republics of Central America. It was liberated from the Spanish yoke in 1821, and since that time amid many a revolutionary storm has maintained a republican form of government. It is sparsely settled, its entire population not exceeding 375,000. In its palmy days it had a number of cities with a population of over a hundred thousand, flourishing cities which are now only a heap of ruins or have their sites marked by little villages. The interior is mountainous, the coast fringed by fertile lowlands or mangrove swamps. It is in the latter locality that malaria does its deadly work throughout the entire year. The soil is fertile and yields a rich harvest from the coast to the mountain peaks. Its agricultural resources are immense and only await the intelligent and energetic tiller of the soil to bring prosperity to the country noted for its poverty. At an elevation of 2000 to 4000 feet the climate is equable and exhilarating, resembling June weather of the Middle States.

WHERE ONLY MAN IS VILE.

Nature has done everything for Spanish Honduras to make it a productive, prosperous country, but the inherent indolence of the natives has inhibited progress and financial prosperity. Teguaigalpa, with a population of 15,000, is the largest city. Puerto Cortez has a large floating population, its inhabitants ranging at different times and seasons of the year from 1000 to 2000. The modern buildings are few, most of the buildings being small, one-story shanties, without a trace of paint. The public buildings are a disgrace to the government. The house occupied by the highest official, the commandante, would be looked at with disfavor by the citizens of Chicago's Ghetto. The wharf is in such rickety condition that the captains of the steamers which touch here are very cautious in reaching the wharf for fear that if the vessel should strike it with any degree of force the whole structure and the adjoining warehouse might lose their foundation, as some of the pilings have been reduced to the size of a broom-stick by the destructive barnacles.

San Pedro, the principal city on the Honduras Railroad, is situated 36 miles inland from Puerto Cortez. If the train makes good time the journey is made in four hours. The iron rails of the little railroad have done service since 1868, which might account for the slow speed and the unmerciful jolting and bumping of the two passenger coaches in the rear of the freight cars. San Pedro has 7000 inhabitants, and is quite an important business center. The present governor of the province has carried into effect many progressive ideas which will prove of lasting benefit to the city. The city hall is a creditable building facing the new park; the ground floor of the building is occupied by the barracks and the provincial jail. The railroad extends from here to Piomenti, its western terminus, a distance of 18 miles. The principal article of export from this part of Honduras consists of the perennial yield of the numerous and productive banana fields.

A PARADISE FOR SPORTSMEN.

The sportsman finds here a genuine paradise. From the different stations he is within easy reach of monkeys, deer, parrots, tapirs, peccaries, wild hogs, armadillos, tigers, and a great variety of birds of plumage. This country is rife for a period of awakening which will be realized with the introduction of more northern capital and energy and the establishment of a more stable government. The frequent revolutions and the weak government are responsible for the delay of modern progress and the poverty of the people. The requirements of the natives are few; their ambition is limited. The scanty clothing is a matter of small expense, the forests and banana fields furnish them with food which they can obtain with little or no exertion. Man, like animals, adapts himself to his environments. The climate of the lower altitudes is depressing, which, coupled with the ever-present chronic malarial intoxication, antagonizes energy and limits the desires of the average natives to the very necessities of life.

PHYSICIANS.

Spanish Honduras has 97 licensed practitioners, including natives and graduates from the medical colleges of the United States and from almost all of the countries of Europe. The license to practice is obtained from the Board of Medical Examiners appointed by the government. All candidates must be graduates of a medical school. For the last two years there has been a medical school connected with the university in the capital city. As this city has only 15,000 inhabitants, it is very evident that the clinical advantages of the medical department must necessarily be inadequate. The better class of medical students obtain their professional education in the United States. It must be a source of regret to the practitioners of this country as well as to the outside medical world that so far no medical society has been organized. The limited railway facilities and the irregularity and inadequacy of the coast steamer service may explain the lack of any attempt to organize the medical profession upon a permanent basis. It is to be hoped, however, that efforts in this direction will be made in the near future. Many of the practitioners of this remote country are in possession of a clinical experience which if published would add much valuable material to our medical literature. I have never failed to find, in the different tropical countries that I have visited, many cases that were a complete puzzle to me, and I am sure our southern colleagues have had the same experiences when they visited the hospitals and clinics of the northern part of the United States. A trip to Central America or any other part of the tropics by any of our medical men can not fail in enlarging their fund of knowledge in everything pertaining to tropical diseases. For this and many other reasons it is very desirable that a closer relationship should be cultivated between the medical profession of the United States and of our Southern republics. A number of the most successful practitioners in Honduras are graduates from the medical colleges of the United States. Most of them are young men who have left their homes and their families with high expectations of reaping in a short time a financial success which would overshadow their hardships and recompense them for the additional risk to which they expose their lives. From what I have seen in the different parts of Central America of our graduates and their work

I find no reason to encourage our young men to seek this part of the world in search of fame or wealth. As long as the different countries remain in the dormant condition in which they are at the present time there is no incentive for such a haphazard undertaking. The few men who have done fairly well would have done much better in any of our prosperous cities in the North. With an increased influx of American capital and labor the conditions for the medical men will be improved.

NATIVE DOCTORS.

By native doctors I do not mean the natives who have obtained their medical education either at home or abroad, but the native medicine men, who lack not only a knowledge of medicine, but who are devoid of anything akin to education of any kind. These natural or lay medicine men are to be found everywhere in the larger cities and in every hamlet. They control the bulk of medical practice. The lower classes of Hondurians, regardless of their racial origin, are exceedingly superstitious. They believe in witchcraft and superhuman power in dealing with disease. The medicine men are shrewd in taking advantage of this weakness of their fellowmen and practice deception to an extent unrivaled by their kind during any part of the world's history, past or present. These men do not devote their whole time and attention to the healing of the sick. In common with their neighbors, they cultivate a little banana patch or take care of a few coffee shrubs, but

A native house.

Only street in the City of Puerto Cortez.

they are always in readiness to answer a sick call by day or night. The charges for their services are commensurate with their lack of medical knowledge. Two reals (10 cents) is considered by them a liberal fee for anything they are called upon to undertake. The capital invested for plying their trade is small. Charms of the cheapest kinds and a few herbs gathered in the jungles is all that is required to establish their business. They are general practitioners and have no use for specialists. They cover the entire field of medicine, surgery, gynecology and obstetrics. It will suffice if I quote a few instances of the practice of these native medical men. On one occasion in a hamlet not far from Puerto Cortez, a laborer became afflicted with a severe attack of panaritium or felon. The distal phalangeal end of one of the fingers became seriously involved and it became a question whether or not it could be saved. The treatment pursued was powerless in arresting the ravages of the disease. The doctor as well as the patient became satisfied that the only proper treatment would consist in sacrificing the diseased part of the finger. The native physician undertook the task, but failed in making the necessary preparations to complete the undertaking. An ordinary pocket knife was sharpened and with it the soft tissues were incised on the proximal side of the disease down to the bone by a circular cut. The unexpected difficulty now arose—the bone had to be divided. A search through the entire village failed to produce an instrument suitable for this part of the primitive operation. The native doctor did not lose his sense of original tact under such perverse circumstances. He had no difficulty in securing a machete, the national weapon and universal implement, which constitutes an essential part of the outfit of every native. This implement is made of the best of steel. When called into requisition for such an unusual requirement it was sharpened with especial care. The patient was requested to place the part of the finger he had consented to lose upon a block. The sharp edge of the machete was laid upon the part of the phalanx which had to be divided in order to complete the amputation. A sharp blow upon the back of the extemporized amputating instrument severed the bone and the operation was completed. The wound was washed with a solution of permanganate of potassium and dressed in a most primitive way, The patient was promptly relieved from his suffering and it is related that the resulting stump was an excellent one.

On another occasion the services of the native doctor in the same locality was requested for a difficult obstetrical case. The woman had been in labor for three days without any appreciable progress. The layman obstetrician found the head impacted in the pelvis. After examination he came to the conclusion that the distended perineum was the principal cause of the delay in the delivery of the child. He had no instruments with which to deal effectually with the mechanical obstruction. He regarded the case as one of special importance in which the instrument to be employed to secure the much-needed relief should be one made of precious metal. He found, after a long search, an old Spanish silver coin. One-half of its circumference was sharpened and with this instrument he incised the perineum in the median line with the result that soon after a living child was born. He sutured the wound with an ordinary sewing needle armed with cotton thread and found his patient two weeks later attending to her usual household duties. The natural healer in Honduras has before him a wide sphere of action, but his cash income is a very limited one, as the people gauge his services without reference to learning or skill, but on the basis of ordinary labor.

HOSPITALS.

There are only two small hospitals in the whole country, one in San Pedro and the other in the capital city. The Hospitale Generale del Norte at San Pedro is a two-story frame building formerly used as a protestant school for children. It can accommodate thirty patients. The large ward on the first floor is occupied by male patients. The furniture is of the simplest kind, iron bedsteads, seagrass mattresses, with a blanket and pillow and no linen. The male ward contains 24 cots and the adjoining female ward six. The operating room is supplied with a rough wooden table, no instruments or facilities for aseptic work. No provision is made for private patients. The physician in charge is appointed by the government and receives a small salary. He occupies the second story of the building. There are no

trained nurses, the convalescents do what they can for those who are confined to bed. The second hospital is located in the capital city. Its capacity is larger, but the facilities are in all probabilities of the same primitive character.

Spanish Honduras makes no provision for the insane. As long as the lunatics are harmless they are permitted to roam about and when they become dangerous they are imprisoned with criminals of all sorts.

A HONDURIAN MILITARY HOSPITAL.

The Hondurian soldier does not lead a life of luxury. He stands low in the social scale. He does not feel like a soldier; at any rate, he manifests no indications of a martial spirit. He enters the service of his country not by his own free will. Every able-bodied man of military age is drafted and must perform military duty three months every year, and when he becomes a reserve he must drill every Sunday morning until he reaches the age of forty-five. The reasons for the unpopularity of the military service in Honduras are very apparent. In the first place, the natives lack that essential quality of a good soldier—patriotism. The soldier's pay is so insignificant that it could be no inducement whatever to enter the service. The privates are paid ten cents a day and with this beggarly salary he must fight starvation the best he knows how, as he receives no rations. When he enters the service he receives a uniform made of cheap blue cotton cloth embellished by blood-red strips of cloth of the same quality, and when this is worn out he must clothe himself. The consequence of this miserly treatment of the soldier by the government is that in the barracks and upon the streets he makes the appearance of a beggar or tramp and not of a soldier. The army has no distinctive head dress. The cheapest straw and felt hats and all kinds of caps are worn, which, with the bare feet and faded, ragged clothes, makes a picture not well calculated to infuse love for the country or to inspire a military spirit. The weapon used is a single breech-loader of ancient pattern kept in a most dilapidated condition. The dozen cartridges each man carries are kept in a small bag which is tied to the barrel of the rusty musket. The soldiers are distributed all over the country, seldom more than one hundred being at any one place. I was very much amused one Sunday morning at San Pedro where I had an opportunity to witness one of the weekly drills of the reserves. The men, all of them from thirty to forty-five years of age, came in their civilian Sunday clothes. None of them presented a church-going appearance. A more motley crowd it would be difficult to imagine. Most of them were supplied with wooden guns of their own make. The pieces, none of them alike, faintly resembled the outlines of a real gun. Others, who had not taken the time or pains to prepare a toy gun, drilled with sticks, some were empty-handed and only a very few were in possession of rusty guns that had done service years ago, but which in the present state would not prove more harmful in active service than the wooden imitations. No wonder the Hondurian soldiers have to be pressed into service and when in the military grasp of the country often seek relief by desertion or by feigning disease. The government makes no provision for the sick soldier. In case of illness he must take care of himself and when this is out of question he has to depend on the mercy of his comrades, sick and well. The Hondurian Military Hospital I intend to describe is located in Puerto Cortez. It is the refuge for the sick of the local military force, which does not exceed one hundred men. It is an old, one-story, delapidated frame building, raised from the ground by piling. The stilts of wood which support the building are rotten and ready to give way under the slightest unusual provocation. The wooden stairs to one of the front doors have disappeared long ago. The same fate awaits any day the remaining access to the interior of the building. One thing this building does not lack, that is free ventilation. The many cracks and holes in the floor, ceiling and walls furnish free and multitudinous avenues for the entrance and escape of air. The front room is occupied by the guard. Here I found at the time of my visit two rusty muskets with fixed bayonets, each of them supplied with a little bag of ammunition fastened to the piece with a string. A large shelf, four feet from the floor, with a slight inclination and divided into six equal compartments by boards four inches in height with a smooth round block of wood at the head of each compartment answers the purpose of beds for the men in charge of the invalids. In the next room are beds of similar construction for the sick. This room was occupied by six patients, one of them in the midst of a severe malarial chill. There were no signs of blankets, sheets, pillows, towels or any other of the necessary conveniences of a sick room. When I stepped into the back room the floor threatened to give way. This room serves as a kitchen and dining room. A little pile of stones with a glimmering fire on top constituted the stove. I could find no trace of food supply. A rough table was the only article of furniture. No operating room and no dispensary existed. We were informed by the inmates of the hospital that the only medicines used in this hospital are castor oil and quinin. All of the patients were anemic and showed other signs of malarial intoxication.

A Hondurian Military Hospital.

PREVALENT DISEASES.

The prevailing diseases of Spanish Honduras are the same as those of British Honduras, as there is a great similarity of soil and inhabitants in both countries. Typhoid fever is almost unknown. The frequency with which dysentery and bowel affections occur would naturally lead us to expect that appendicitis is very common. This is, however, not the case. Dr. Austin, of Puerto Cortez, who has lived in Honduras for nine years and who has had an unusually large experience, never saw a case of appendicitis during this time, and his observation must be accepted as correct, as elsewhere he has had a very large experience with this disease. Tuberculosis in its various forms is rapidly decimating the natives. Diphtheria is almost unknown on the Atlantic coast. A case recently occurred at Rio Blanco, a village on the railroad between Puerto Cortez and San Pedro, and this was the only case that occurred in that part of the country. The patient was a little girl, white, five years of age. The diagnosis was confirmed by the paralysis of the soft palate which followed as a sequel to the membranous inflammation of the tonsils and pharynx. For a time the disease threatened laryngeal invasion. Fifteen units of the antitoxin was promptly followed by improvement and complete recovery. The little patient was isolated and no other cases developed. The source of the infection could not be traced. Pneumonia is of a comparatively mild type. Rheumatism and bronchitis are common diseases. The pernicious form of malaria is treated by the subcutaneous administration of heroic doses of quinin. Dr. Austin informed me that it is not unusual for him to administer 300 grains in the course of twelve to twenty-four hours.

STRYCHNIN TREATMENT OF SNAKEBITES.

Dr. Austin has great faith in the subcutaneous use of large doses of strychnin in the treatment of the bites of poisonous snakes, in fact he considers this remedy in the light of a specific, provided the treatment is commenced in time. The snake poison paralyzes the heart's action and in preventing this effect by the use of strychnin time is gained for the elimination of the poison. He injects subcutaneously one-twentieth grain of the drug every fifteen or twenty minutes until the

paralytic effect of the poison is neutralized. A moderate single dose of whisky or brandy is given during the beginning of the treatment.

In conclusion, I desire to thank Mr. Henry M. Keith, Drs. Eyles and Harrison, of Belize, Dr. Austin, of Puerto Cortez, and Drs. Waller and Hunter, of San Pedro, for the many courtesies extended to me and my companion during our short and pleasant visit in British and Spanish Honduras.

THE PROPOSED CONSTITUTION AND BY-LAWS FOR STATE SOCIETIES.

A Committee on Constitution and By-Laws was recently appointed by the President of the American Medical Association, Dr. John A. Wyeth, in accordance with a resolution adopted at the meeting of the Association at St. Paul last June, to coöperate with the committees on reorganization that have been or may be appointed by the various state societies. There has been an expressed desire on the part of the officers, members and committees of nearly all the state societies to comply with the recommendations of the American Medical Association in regard to a more uniform organization of the state bodies. The committee has thought best to prepare a constitution and by-laws for state societies that shall incorporate the general principles recommended to and adopted by the American Medical Association and it submits below such constitution and by-laws.

The committee desires it to be understood that this is only suggestive. While it believes that, as a rule, practically all the articles, chapters and sections can be adopted by most of the state societies, at the same time local conditions may make it advisable to modify them in various ways.

As will be noticed, the word "association" has been adopted as applying to the state body and the word "society" applying to the county. This is a minor detail and yet one of more or less importance. It has been adopted by Alabama and by some of the other state organizations.

In Article IV the committee has made no provision for honorary or associate members.

In Chapter IV, Section 2, provision is made for an apportionment of one delegate for every one hundred members. This may be too high in those states in which there are no large county societies. The object is to make the legislative body as small as is consistent with conditions, and in those states in which there is a large county society, a high apportionment makes it impossible for the large societies to get a controlling interest in the legislative body.

The name "House of Delegates" has been adopted in this constitution, but it is not necessarily to be followed, the name being immaterial.

The committee desires especially to call attention to the "council" provided in Chapter VII of the by-laws. As will be noted, this council is to be composed of men from various parts of the state, so that each part shall be fairly represented in this important body. It presupposes the division of a state into say ten districts, and in each of these districts a district society may be formed if it is thought best. Each individual councillor will have certain definite duties to perform. First, he is the censor for his district; all disputes between members, between societies and between societies and members should be referred to the councillor and it will be his duty to settle such disputes if he can. It will be his duty to organize societies in counties in which none exist and to stimulate to active work societies now existing, or that may be created, and to visit each society at least once annually. If the right men are selected for the position of councillor, it will probably do away with the necessity of employing a paid organizer. The committee is earnest in its belief that such councillors should be paid their actual expenses in this work, believing that it will be money well invested from a financial point of view, and especially believing that medical men ought not to be asked to do such work for nothing and pay their own expenses. The majority of the committee believe that this council should have greater duties than have been given in this constitution; that it should be also the executive committee of the state society—in fact, that it should act for the state society during the interval between meetings. This suggestion is made, but it will be noticed that it is not incorporated in the by-laws. The committee believes that there should be a more or less continuous body in each state association. The probability is that the House of Delegates may be made up of entirely new members some year from what it was the year previous, and hence the necessity of a continuous body in the House of Delegates. The council is therefore made a part of the House of Delegates and its members are elected for five years. It is asked that this idea of a council be given special thought by the committees on reorganization representing the state societies.

The committee regards the creation of such a council made up of the truest, most unselfish, most willing, and most capable physicians in each state as of the very highest importance in the scheme of perfected organization. The council can, if in good hands, accomplish wonders for the profession. We beg that each state will give this innovation its most serious attention. It may be added that in those states in which it has been tried in part it has worked excellently well.

Attention is asked to the fact that the constitution is made very short and that it contains the essential features of the new mode of organization. The by-laws, on the other hand, contain the superstructure of regulations that have been built upon the constitution as a foundation. The committee believes that the provisions of the constitution are fundamental, and recommends that the state societies adopt them with just as little change as may be necessary to adapt them to local conditions. In the by-laws the committee has included much that is perhaps to be regarded as suggestive and more that is educational in its purpose. It follows then that the by-laws may be considerably modified in each state without damage to the uniformity of state organization which the American Medical Association has declared to be desirable.

There are sections in the by-laws that can be left out without difficulty, and beyond doubt many of the state committees will be able to suggest points that should be covered in the by-laws in order that the medical profession may be harmoniously and strongly organized. The

committee especially requests that each state committee, after full consideration of the documents herewith submitted, will transmit to this committee promptly those modifications which to them appear desirable. In this way the work of organization may be kept going with equal facility and simultaneously in all parts of the country, and by this means each state can be given the early opportunity of taking under consideration the ideas and plans of its near and distant neighbors. It will then be perceived that this committee regards it as highly important to the general welfare that all the state societies should in all things work in mutual harmony, and should be furnished the facilities for the ready intercommunication of views. Up to this time each state medical society has been an isolated community working along similar lines, but each compelled to meet the same difficulties without the great advantage of having at hand the record of experience of sister societies under like circumstances. The new scheme of medical organization has as one fundamental principle the federating together of the state societies. The execution of this ideal will never be of greater service than under present conditions, when each state is anxious to perfect its mode of organization.

Section 8 of Chapter IV of the by-laws is objected to by some, but the principle expounded is indubitably correct; the method of execution can no doubt be improved upon by the state committees. The same remarks hold true as to Section 12 of Chapter XII, and again the principle is one that is too important to be overlooked.

The committee has suggested that the annual dues be two dollars. The profession can profitably employ all the funds that can be raised without putting a burden on its members, but there must be a sufficient amount to render effective the work of the association. Money is essential to the success of any sort of organization, and physicians should learn that liberal contributions to well-conducted medical societies will bring tenfold benefit. Each society might well contemplate the creation of an endowment fund to be held, invested, used in emergencies of legislative contest or scientific research, or the interest applied to special purposes. Massachusetts has accumulated in this way $47,200. Other states can readily make a beginning and the value of such a fund as a factor in stability and as a help in emergency is simply incalculable. Above all, medical societies should gather funds to assist scientific research by direct grant of funds or by offering rewards. By doing this we will aid the forward movement of medical science, and will also convince the general public that our protestations of concern for the general welfare are genuine.

Much in the by-laws submitted may be regarded as "preaching," but it is inserted advisedly, with the sole object of arousing in the minds of each medical society member a desire for the accomplishment of greater ends than has been permitted by the customs and forms of the past. The committee earnestly desires that the state committees will continue the work of perfecting organization, actuated by that love for our profession that its ideals demand. With the medical profession well organized, medical science will more rapidly step to its appointed high place, and the profession which lives in its atmosphere will have that power and respect in the community that is its right.

J. N. McCORMACK, Bowling Green, Ky.,
P. MAXWELL FOSHAY, Cleveland, Ohio,
GEORGE H. SIMMONS, Chicago, Ill.
Committee.

CONSTITUTION.

ARTICLE I.—NAME OF THE ASSOCIATION.

The name and title of this organization shall be the ———— State Medical Association.

ARTICLE II.—PURPOSES OF THE ASSOCIATION.

The purpose of this Association shall be to federate and bring into one compact organization the entire medical profession of the State of ————, and to unite with similar Associations in other States to form the American Medical Association; with a view to the extension of medical knowledge, and to the advancement of medical science; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests; and to the enlightenment and direction of public opinion in regard to the great problems of state medicine; so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—COMPONENT SOCIETIES.

Component Societies shall consist of those county medical societies which hold charters from this Association.

ARTICLE IV.—COMPOSITION OF THE ASSOCIATION.

SECTION 1. This Association shall consist of Members, Delegates and Guests.

SEC. 2. MEMBERS. The Members of this Association shall be the members of the component county medical societies.

SEC. 3. DELEGATES. Delegates shall be those members who are elected in accordance with this Constitution and By-Laws to represent their respective component county societies in the House of Delegates of this Association.

SEC. 4. GUESTS. Any distinguished physician not a resident of this State may become a guest during any Annual Session upon invitation of the Association or its Council, and shall be accorded the privilege of participating in all of the scientific work for that Session.

ARTICLE V.—HOUSE OF DELEGATES.

The House of Delegates shall be the legislative and business body of the Association, and shall consist of (1) Delegates elected by the component county societies, and (2), *ex-officio*, the officers of the Association as defined in this Constitution.

ARTICLE VI.—SECTIONS AND DISTRICT SOCIETIES.

The House of Delegates may provide for a division of the scientific work of the Association into appropriate Sections, and for the organization of such Councillor District Societies as will promote the best interests of the profession, such societies to be composed exclusively of members of component county societies.

ARTICLE VII.—SESSIONS AND MEETINGS.

SECTION 1. The Association shall hold an Annual Session, during which there shall be held daily not less than two General Meetings, which shall be open to all registered members, delegates and guests.

SEC. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

ARTICLE VIII.—OFFICERS.

SECTION 1. The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and ten Councillors.

SEC. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary, Treasurer and Councillors shall be elected for terms of five years each, the Councillors being divided into classes so that two shall be elected each year. All of these officers shall serve until their successors are elected and installed.

SEC. 3. The officers of this Association shall be elected by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councillor, and no person shall be elected to any such office who is not in attendance upon that Annual Session and who has not been a member of the Association for the past two years.

ARTICLE IX.—FUNDS AND EXPENSES.

Funds for meeting the expenses of the Association shall be arranged for by the House of Delegates by an equal per capita assessment upon each county society to be fixed by the House of Delegates, by voluntary contribution, and from the profits of its publications. Funds may be appropriated by the House of Delegates to defray the expenses of the Annual Sessions, for publication, and for such other purposes as will promote the welfare of the Association and profession.

ARTICLE X.—REFERENDUM.

The General Meeting of the Association may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may, by a similar vote of its own members, or after a like vote of the General Meeting, submit any such question to the membership of the Association for a final vote; and if the persons voting shall comprise a majority of all the members, a majority of such vote shall determine the question, and be binding upon the House of Delegates.

ARTICLE XI.—THE SEAL.

The Association shall have a common Seal, with power to break, change or renew the same at pleasure.

ARTICLE XII.—AMENDMENTS.

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that Annual Session, provided that such amendment shall have been presented in open meeting at the previous Annual Session, and that it shall have been sent officially to each component county society at least two months before the session at which final action is to be taken.

BY-LAWS.

CHAPTER I.—MEMBERSHIP.

SECTION 1. All members of the Component County Societies shall be privileged to attend all meetings and take part in all of the proceedings of the Annual Sessions, and shall be eligible to any office within the gift of the Association.

SEC. 2. The name of a physician upon the properly certified roster of members, or list of delegates, of a chartered county society which has paid its annual assessment, shall be *prima facie* evidence of his right to register at the annual session in the respective bodies of this Association.

SEC. 3. No person who is under sentence of suspension or expulsion from any component society of this Association, or whose name has been dropped from its roll of members, shall be entitled to any of the rights or benefits of this Association, nor shall he be permitted to take any part in any of its proceedings until such time as he has been relieved of such disability.

SEC. 4. Each member in attendance at the annual session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified by reference to the roster of his society, he shall receive a badge which shall be evidence of his right to all the privileges of membership at that session. No member or delegate shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

CHAPTER II.—ANNUAL AND SPECIAL SESSIONS OF THE ASSOCIATION.

SECTION 1. The Association shall hold an annual session at such time and place as has been fixed at the preceding annual session (or as fixed by this Constitution and By-Laws).

SEC. 2. Special sessions of either the Association or House of Delegates shall be called by the President at his discretion or upon petition of twenty delegates.

CHAPTER III.—GENERAL MEETINGS.

SECTION 1. The General Meetings shall include all registered members, delegates, and guests, who shall have equal rights to participate in the proceedings and discussions; and, except guests, to vote on pending questions. Each General Meeting shall be presided over by the President, or in his absence or disability, or by his request, by one of the Vice-Presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the President and the annual orations, and the entire time of the Session so far as may be shall be devoted to papers and discussions relating to scientific medicine.

SEC. 2. The General Meeting shall have authority to create committees or commissions for scientific investigations of special interest and importance to the profession and public, and to receive and dispose of reports of the same; but any expense in connection therewith must first be approved of by the House of Delegates.

SEC. 3. Except by special vote, the order of exercises, papers and discussions as set forth in the official program shall be followed from day to day until it has been completed.

SEC. 4. No address or paper before the Association, except those of the President and Orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject.

SEC. 5. All papers read before the Society shall be its property. Each paper shall be deposited with the Secretary when read, and if this is not done it shall not be published.

CHAPTER IV.—HOUSE OF DELEGATES.

SECTION 1. The House of Delegates shall meet annually at the time and place of the annual session of the Association, and shall so fix its hours of meeting as not to conflict with the first General Meeting of the Association, or with the meeting held for the address of the President and the annual orations, and so as to give delegates an opportunity to attend the other scientific proceedings and discussions so far as is consistent with their duties. But if the business interests of the Association and profession require, it may meet in advance, or remain in session after the final adjournment of the General Meeting.

SEC. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every 100 members, and one for each major fraction thereof, but each county society holding a charter from this Association, which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate.

SEC. 3. A majority of the registered delegates shall constitute a quorum, and all of the meetings of the House of Delegates shall be open to members of the Association.

SEC. 4. It shall, through its officers, Advisory Council, and otherwise, give diligent attention to and foster the scientific work and spirit of the Association, and shall constantly study and strive to make each annual session a stepping-stone to future ones of higher interest.

SEC. 5. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

SEC. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

SEC. 7. It shall encourage-post-graduate work in medical centers, as well as home study and research, and shall endeavor to have the results of the same utilized and intelligently discussed in the county societies. (With these ends in view, five years after the adoption of these By-Laws no voluntary paper shall be placed upon the annual program or be heard in the Association, which has not first been read in the county society of which the author is a member.)

SEC. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body in such a manner that not more than one-half of the delegates shall be elected in any one year.

SEC. 9. It shall, upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-Laws.

SEC. 10. In sparsely settled sections it shall have authority to organize the physicians of two or more counties into societies to be designated by hyphenating the names of two or more counties so as to distinguish them from district and other classes of societies, and these societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

SEC. 11. It may divide the counties of the State into ten Councillor Districts, and, when the best interest of the Association and profession will be promoted thereby, organize in each a district medical society, to meet midway between the Annual Sessions of this Association, and members of the chartered county societies, and none others, shall be members in such district societies. When so organized from the presidents of such district societies shall be chosen the Vice-Presidents of this Association, and the presidents of the county societies of the district shall be the vice-presidents of such district societies.)

SEC. 12. It shall have authority to appoint committees for special purposes from among members of the Association who are not members of the House of Delegates, and such committees may report to the House of Delegates in person, and may participate in the debate thereon.

SEC. 13. It shall approve all memorials and resolutions issued in the name of the Association before the same shall become effective.

SEC. 14. It shall present a summary of its proceedings to the last general meeting of each annual session, and shall publish the same in the Transactions.

CHAPTER V.—ELECTION OF OFFICERS.

SECTION 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect.

SEC. 2. The House of Delegates on the first day of the Annual Session shall select a Committee on Nominations consisting of ten delegates, no two of whom shall be from the same councillor district. It shall be the duty of this committee to consult with the members of the Association and to hold one or more meetings at which the best interests of the Association and of the profession of the State for the ensuing year shall be carefully considered. The Committee shall report the result of its deliberations to the House of Delegates in the shape of a ticket containing the names of three members for the office of President and of one member for each of the other offices to be filled at that annual session. No two candidates for President shall be named from the same county.

SEC. 3. The report of the Nominating Committee and the election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session.

SEC. 4. Nothing in this article shall be construed to prevent additional nominations being made by members of the House of Delegates.

CHAPTER VI.—DUTIES OF OFFICERS.

SECTION 1. The President shall preside at all meetings of the Association and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver an annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the Councillors in building up the county societies, and in making their work more practical and useful.

SEC. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of his death, resignation or removal, the Council shall select one of the Vice-Presidents to succeed him.

SEC. 3. The Treasurer shall give bond for the trust reposed in him whenever the House of Delegates shall deem it requisite. He shall demand and receive all funds due the Association, together with the bequests and donations. (He shall, under the direction of the House of Delegates, sell or lease any estate belonging to the Association, and execute the necessary papers; and shall, in general, subject to such direction, have the care and management of the fiscal affairs of the Association.)

He shall pay money out of the Treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands. He shall charge upon his books the assessments against each component county society at the end of the fiscal year; he shall collect and make proper credits for the same, and perform such other duties as may be assigned to him.

SEC. 4. The Secretary, acting with the Committee on Scientific Work, shall prepare and issue the programs for and attend all meetings of the Association and of the House of Delegates, and he shall keep minutes of their respective proceedings in separate record books. He shall be custodian of all record books and papers belonging to the Association, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Association which come into his hands. He shall provide for the registration of the members and delegates at the Annual Sessions. He shall keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county society, and upon request shall transmit a copy of this list to the American Medical Association for publication. In so far as it is in his power he shall use the printed matter, correspondence and influence of his office to aid the Councillors in the organization and improvement of the county societies, and in the extension of the power and usefulness of this Association. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall act as Chairman of the Committees on Scientific Work and on Publication. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the Secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient, it is desirable that he should receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

CHAPTER VII.—COUNCIL.

SECTION 1. The Council shall hold daily meetings during the annual session of the Association and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councillors. It shall meet on the last day of the annual session of the Association for re-organization and for the outlining of work for the ensuing year. At this meeting it shall elect a Chairman and Secretary, and it shall keep a permanent record of its proceedings. It shall, through its Chairman, make an annual report to the House of Delegates at such time as may be provided.

SEC. 2. Each Councillor shall be organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession, and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his doings, and of the condition of the profession of each county in his district to each annual session of the House of Delegates. The necessary traveling expenses incurred by such Councillor in the line of the duties herein imposed may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expense in attending the annual session of the Association.

SEC. 3. Collectively the Council shall be the Board of Censors of the Association. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or to this Association. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or of a county society, upon which an appeal is taken from the decision of an individual councillor. Its decision in all such cases shall be final.

SEC. 4. The Council shall have the right to communicate the views of the profession and of the Association in regard to health, sanitation and other important matters to the public and the lay press. Such communications shall be officially signed by the chairman and secretary of the Council, as such.

CHAPTER VIII.—COMMITTEES.

SECTION 1. The standing committees shall be as follows:

A Committee on Scientific Work.
A Committee on Public Policy and Legislation.
A Committee on Publication.
A Committee on Nominations.
A Committee on Arrangement, and such other Committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

SEC. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be a member and Chairman, and shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instructions of the House of Delegates or of the Association, or to the provisions of the Constitution and By-Laws. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented, which shall be adhered to by the Association as nearly as practicable.

SEC. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Association in securing and enforcing legislation in the interest of the public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to secure the best results for the whole people, and shall utilize every organized influence of the profession to promote the general influence in local, state and national affairs and elections. Its work shall be done with the dignity becoming a great profession and with that wisdom which will make effective its power and influence. It shall have authority to be heard before the entire Association upon questions of great concern at such time as may be arranged during the annual session.

SEC. 4. The Committee on Publication shall consist of three members, of which the Secretary shall be one and Chairman, and shall have referred to it all reports on scientific subjects, and all scientific papers and discussions heard before the Association. It shall be empowered to curtail or abstract papers and discussions, and any paper referred to it which may not be suitable

for publication in the Transactions may be returned to the author. The Committee shall have authority to arrange for the publication and distribution of the Transactions after receiving competitive bids, and shall use diligence in getting them into the hands of the members. All papers read before the Association shall be the property of the Association.

SEC. 6. The Committee on Nominations shall be appointed and perform its duties in accordance with the provisions of Chapter —— Sec. —— of these By-Laws.

SEC. 7. The Committee of Arrangements shall consist of the component society in the territory in which the annual session is to be held. It shall, by committees of its own selection, provide suitable accommodations for the meeting-places of the Association and of the House of Delegates, and of their respective committees, and shall have general charge of all the arrangements. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

CHAPTER IX.—ASSESSMENTS AND EXPENDITURES.

SECTION 1. An assessment of two dollars per capita on the membership of the component societies is hereby made the annual dues of this Association. The Secretary of each county society shall forward its assessment together with its roster of all officers and members, list of delegates, and list of non-affiliated physicians of the county to the Secretary of this Association thirty days in advance of each Annual Session (or on or before some specified date).

SEC. 2. Any county society which fails to pay its assessment, or make the reports required, on or before the date above stated, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the Association or of the House of Delegates until such requirements have been met.

SEC. 3. All motions or resolutions appropriating money shall specify a definite amount, or so much thereof as may be necessary for the purpose indicated, and must be approved by the Council and House of Delegates on a call of the ayes and noes.

CHAPTER X.—RULES OF CONDUCT.

The principles set forth in the Code of Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XI.—RULES OF ORDER.

The deliberations of this Association shall be governed by parliamentary usage as contained in Robert's Rules of Order, unless otherwise determined by a vote of its respective bodies.

CHAPTER XII.—COUNTY SOCIETIES.

SECTION 1. All county societies now in affiliation with the State Association or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-Laws, shall, upon application to the House of Delegates, receive a charter from and become a component part of this Association.

SEC. 2. As rapidly as can be done after the adoption of this Constitution and By-Laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

SEC. 3. Charters shall be issued only upon approval of the House of Delegates and shall be signed by the President and Secretary of this Association. The House of Delegates shall have authority to revoke the charter of any component county society whose actions are in conflict with the letter or spirit of this Constitution and By-Laws.

SEC. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made, with the aid of the Councillor for the District if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

SEC. 5. Each county society shall judge of the qualification of its own members, but, as such societies are the only portals to this Association and to the American Medical Association, every reputable and legally registered physician who is practicing, or who will agree to practice, non-sectarian medicine shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

SEC. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right of appeal to the Council and to the House of Delegates.

SEC. 7. In hearing appeals the Council may admit oral or written evidence as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a Board and as individual councillors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

SEC. 8. When a member in good standing in a component society moves to another county in this State, his name, upon request, shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

SEC. 9. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

SEC. 10. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

SEC. 11. Frequent meetings shall be encouraged, and the most attractive programs arranged that are possible. The younger members shall be especially encouraged to do post-graduate and original research work, and to give the society the first benefit of such labors. Official position and other preferments shall be unstintingly given to such members.

SEC. 12. At (some meeting in advance of the annual session of this Association) each county society shall elect a delegate or delegates to represent it in the House of Delegates of this Association, in the proportion of one delegate to each (one hundred members) or fraction thereof, and the secretary of the society shall send a list of such delegates to the Secretary of this Association, at least ten days before the annual sessions.

SEC. 13. The secretary of each county society shall keep a roster of its members, and a list of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. He shall furnish an official report containing such information, upon blanks supplied him for the purpose, to the Secretary of this Association, thirty days in advance of each annual session, and at the same time that the dues accruing from the annual assessment are sent in. In keeping such roster the secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

CHAPTER XIII.—AMENDMENTS.

These By-Laws may be amended at any annual session by a majority vote of all the delegates present at that session, after the amendment has laid upon the table for one day.

New Instrument.

A NEW ASEPTIC THROAT MIRROR.

ALLEN T. HAIGHT, M.D.
CHICAGO.

In presenting this aseptic throat mirror, made out of polished metal, it seems like a return to the time of flourishing Pompeii, when highly polished brass was used for hand-mirrors. The instrument is manufactured from German silver, highly nickel-plated. The handle is universal, is made out of steel, and the joint between the mirror and the handle is

a spring ball and socket, allowing mirrors of different sizes to be used. Being of solid metal, it can be rendered thoroughly aseptic by carbolizing or boiling without any deteriorating effect upon its polished surface. The mirror being nickel-plated, no acid will attack or corrode it provided the mirror is quickly cleansed after using.

Moist chromic acid, to the surface of the nickel-plate, has absolutely no effect. A metal throat mirror was first used by Dr. von Stein, of Moscow, in his clinic and private practice, his instrument being of polished steel. The steel was afterward nickel-plated, but neither of these proved a success. While in London this summer I had a set of instruments made after the pattern I suggested, making the mirror out of solid German silver highly polished and nickel-plated. I have been using the set in my office the last two months and have found the mirror satisfactory in every respect.

The advantages of this throat mirror over the ordinary one of glass are many. Besides those above mentioned, the ball and socket joint is of distinct benefit as the mirror is easily adjustable to any position or angle; there is no rim of metal to interfere with a perfect image being obtained from any part of its surface.

Mirrors are made with the plain or the concave surface. The latter mirror will be used more extensively by dentists. The expense of repolishing and nickeling these mirrors will be slight, and one set should last for many years.

In using the instrument the fingers must be kept away from the surface, and soft chamois skin should be used in polishing the surface before warming. When the mirror is to be used it should be adjusted to the proper angle, then dipped into hot water for a moment and the water allowed to run off and the instrument used before wiping it.

I believe this will be a valuable instrument not only for nose and throat specialists, but also for dentists. With it there can be no possible excuse for not having an absolute aseptic mirror.

Clinical Thermometry.—A trained nurse was recently talking in confidence about the ways of medical men and remarked among other things that nothing could exceed their carelessness in the use of the clinical thermometer. If one comes to think of it and to observe the ways of the average practitioner, one is compelled to acknowledge that the accusation has more truth than fiction in it. In the first place the sins of uncleanliness have to be mentioned. Thermometers ought to be washed after removal from the mouth, or rectum, or elsewhere. That all doctors acknowlegde. But how many cleanse their instruments in soap and warm water, with a final rinse in running, cold water and an hour's sojourn in 1-500 bichlorid? If this is said to be impossible, and the patient (best plan of all) is not able to provide his own, the doctor could at least carry two or three thermometers in his satchel or pocket, and not use the same one on two patients (except in emergency) on the same trip. Then there are the errors of observation. The thermometer is sometimes not shaken down before using. Or, believing the fond statement of the seller, the doctor thinks he has a "one minute" thermometer, and wonders again and again why so many of his patients have a subnormal temperature. As a matter of fact, for all mouth temperatures five minutes at least is required when the general American type of thermometer is used; and if the patient has recently been out in the cold, or has eaten ice-cream or drunk cold water, or is having a chill, the temperature of the mouth, as indicated by the instrument, will continue to rise for ten or twelve minutes after the thermometer is put under the tongue. Axillary temperatures are still more unreliable. In case the patient has no rectal inflammation or congestion, rectal temperatures are most desirable. Far above all other indications, however, in clinical thermometry is the indication to use one's common sense in interpreting results.—*Pediatrics.*

Drug Eruptions.—There is scarcely any medicine which is not liable at some time to induce a cutaneous eruption, Bernard states in the *Gazette des Hôp.* Such eruptions assume all kinds of manifestations and generalization, but they can usually be differentiated by the absence of general symptoms commensurate to the severity of the cutaneous affections. Mercurial eruptions may be febrile and even malignant. Calomel is the most active in this respect. Fournier always tests the susceptibility of the patient to calomel before instituting vigorous treatment with it. Potassium iodid is liable to induce a multiple eruption exhibiting almost all the elementary cutaneous lesions. It may cause acne (especially in dyspeptics and persons inclined to acne), boils, pseudo-carbuncles, purpura, edema, vegetating pemphigus and primary or seeondary gangrene, bunches resembling syphilitic gummata, ophthalmic zona, etc. Antipyrin may run the whole gamut of drug eruptions, but has one peculiar variety, the "stationary erythemato-pigmented eruption" with persisting brown patches. Gaucher has observed a fatal case of hemorrhagic copaiba erythema.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

61 Market Street : : Chicago, Ill.

Cable Address: "Medic, Chicago"

Subscription price: Five dollars per annum in advance

SATURDAY, MAY 3, 1902.

SCHOOLS IN THEIR EFFECTS ON THE HEALTH OF GROWING GIRLS.

To the physician with a family practice, especially in the town or city, the effects of school life upon the health of girls is always a subject of great interest. Every year he is called on to combat the evil results of too much study and too little recreation. In children under nine or ten years of age, boys and girls have about equal endurance and there is no reason for employing different methods in their education. There is but little danger of overstudy at this time and the children usually exercise freely out of doors and obtain sufficient sleep. From about the tenth year, with the beginning of puberty, until development is complete at perhaps the eighteenth to the twentieth year, boys and girls should be dealt with educationally on quite different plans. During this period when the girl is finishing grammar school and is in high school, the most important thing is not to develop her brain to an extreme degree, but to develop her muscular system, her heart and lungs and to give her as nearly perfect digestion as possible. During this time of growth and development physical culture should be sought and given the first place in every consideration. The degree of physical perfection which is attained while the girl is passing through this period of physical growth will determine in a large measure her future health and usefulness. The mind can be cultivated later, and, since the mind matures later than the body, this is the natural sequence. Dr. Jane Kelly Sabine points out that menstrual irregularities are present in 75 per cent. of the women in finishing schools and colleges. These defects date to the time when menstruation first takes place, when habit neuroses are most easily formed, and the reconstruction in the girl's education must be made in the preparatory school. William H. Byford, in speaking of this matter many years ago, very aptly said: "Six hours' study and two hours' play should be reversed; it should rather be eight hours' unrestrained exercise and two hours' study." Laws have been enacted in many states to regulate the hours of labor for minors. If we calculate the hours spent in study in and out of school by many of the pupils in high school, the time would be far in excess of that allowed by law for the labor of minors; moreover, the work is more trying and fatiguing than mere physical labor.

A series of articles[1] on "The School and the Health of School Girls," recently written by four Boston physicians, makes profitable reading. The writers seem to agree that, during the time of puberal development there is a tendency to force the mental development of girls at the expense of the physical and that such a course leads to only bad results. The first step in correcting such a state of things is to locate the factors which unite to produce it, and here we find that blame rests upon both the school and the home. In the school there are too long hours, too much work required outside of school hours, lack of adaptation to the individual, competition among the scholars in examinations and systems of ranking.

In the home physical labor is very rarely of such a nature or quantity as to be injurious to the girl. More often harm comes from late hours with insufficient sleep. In girls who are older, social duties, parties, etc., with undue excitement, may be very detrimental. It is very difficult for a physician to convince parents of the evil results almost sure to follow if these various factors are allowed to operate upon the growing and developing girl. When a little later she becomes hysterical and unable to perform the duties belonging to a woman, people wonder why girls are not as strong as their grandmothers were. Parents are usually pleased when the school-teacher picks out their child as particularly bright and gives her extra work so that she may make two grades instead of one in a year. What difference does it make to a girl whether she graduates from grammar school or high school one or two years sooner or later? It does, however, make a vast difference whether she graduates with a well-developed and healthy body, ready to take up the serious duties of life or with a broken-down, nervous system which will require years to recuperate or which will handicap her during the remainder of life.

To remedy such a complex condition will not be easy. After physicians have pointed out the faults in the present system of education as applied to girls, it remains for educators to devise means for their correction. In educational matters, the opinion of a physician has much weight in a community, and he should make every effort to place school hygiene upon a proper scientific basis. This is one of the public duties which clearly devolves upon physicians because of their special training, and it can not be relegated to anyone else. Besides this, public duty to the girls of a community, the physician must also face the question as it applies to the individual girl. The family physician must never cease to warn parents of the dangers to which developing girls are exposed from overstudy, insufficient out of doors life and deficient sleep and he must make every effort to obtain as good physical development as possible for every girl, knowing that in so doing he is also making the best provision for mental growth and equilibrium.

1. Boston Medical and Surgical Journal, April 10, 1902, 375; abstracted in THE JOURNAL A. M. A., April 26, pp. 1109-1110.

THE BACTERIOLOGY OF SYPHILIS.

Notwithstanding the probability that syphilis is dependent upon a bacterial cause, and despite the utmost industry in the search therefor, it can not be said with certainty that the specific agent has yet been isolated. The local invasion, the glandular enlargement, the period of incubation, the constitutional phenomena, the cutaneous eruptions, the gummata, all are the marks of an infectious disease. So many points of resemblance to other diseases of this group does syphilis present that it is likely often to be confounded with them unless one be constantly on his guard. By keeping this fact always in mind and by acquiring familiarity with the distinctive character of the lesions, the likelihood of error may be reduced to a minimum. The diagnosis once made, the treatment fortunately is clear and we have in mercury and iodin, alone or together, one of the few forms of specific medication. The need for serum-therapy does not, therefore, exist here as it does in connection with other infectious diseases. Nevertheless, the discovery of the micro-organism of syphilis would be a distinct advance, whose practical value can in the present state of knowledge scarcely be appreciated.

Some recent observations by Drs. Joseph and Piorkowski[1] are therefore worthy of attention in this connection. As they point out, a syphilitic but apparently healthy man, free from symptoms, may infect a healthy woman, as well as the embryo, in the act of impregnation. The likelihood of such infection is the smaller as the period from the beginning of the disease is the longer and the treatment employed has been the more active. For this reason the conclusion was reached that the syphilitic virus is contained in the seminal fluid, even when not discoverable elsewhere. Accordingly, a systematic study of this secretion was undertaken. For physiologic reasons, inoculation upon normal sterile placenta was practiced. Upon this medium there developed in 22 cases of syphilis seen at periods varying from 5 weeks to 3½ years after the primary infection, plump bacilli from 4 to 8 microns long and from 0.2 to 0.3 micron thick, with bulbous extremities, staining well with carbolized fuchsin and gentian violet. The organism grew less well on syphilitic placenta. Cultivation upon bouillon and agar proved unsuccessful; nor could the bacilli be found upon uninoculated placenta. On the other hand the bacilli grown on placenta were susceptible of inoculation upon agar and especially upon urine-agar and upon blood serum. The bacilli coagulated milk and rendered it acid. They did not generate gas, but they formed indol in bouillon. They grew best at the temperature of the body and they gave rise to a moist, white, glistening deposit upon the surface of potato. The bacilli could not be found in the seminal fluid from four non-syphilitic men, nor in that from four syphilitic men examined from three to ten years after infection. In one case, however, bacilli were found five years after infection, but here cutaneous lesions were still present. In experimental observations the bacilli failed to survive the spermatozoa, nor could the organisms be found when the seminal fluid contained no spermatozoa. The bacilli were found in the blood in two cases, namely one of azoöspermia and one of recent infection. They exhibited agglutination with the blood-serum of infected individuals and they could not be isolated from the lesions of chancroid. Further, they failed to induce disease in mice, guinea-pigs and rabbits, although suspicious lesions developed in inoculated swine.

It is impossible to decide as to the value of the foregoing observations without further evidence and, while the proof seems inadequate and the facts unconvincing, a final judgment must be reserved until the results recorded, together with their interpretation, are confirmed or refuted.

1. Berliner klinische Wochenschrift, March 24 and 31, 1902.

THE PROPOSED CONSTITUTION FOR STATE SOCIETIES.

We print this week the constitution and by-laws outlined for state societies by the Committee on Organization of the American Medical Association. As is intimated in its introduction, there has been an expressed desire on the part of officials and committees of many of the state societies to coöperate in the work of uniform organization and to adopt a new constitution in conformity with the recommendations of the American Medical Association. But while the general principles recommended were appreciated, it seems to be difficult for some of the committees to embody these principles in the constitution and by-laws. Others seem to magnify the importance of some of the principles and to minimize the value of others. For these and other reasons there promises to be as much lack of uniformity in the future as there has been in the past, in spite of the universal desire that the opposite should be the case. With the constitution and by-laws now presented it is possible for all the state associations to have one plan, whose uniformity is so desirable, in fact so necessary, in performing the active work outlined for the future. While we do not doubt that each state association will be able to modify this constitution and by-laws in minor details to better fit local conditions, at the same time we believe that it is applicable even as it is to practically all the states. There are, of course, certain sparsely settled states and territories, such as, for instance, those of the western Rocky Mountain region, where organization by counties—and in some instances even by districts—is not only impracticable but unnecessary.

For the sake of emphasis we quote a paragraph from the committee's introductory, because it calls attention to a most important matter, the federation of state societies and as a result, coöperative work among them:

The committee especially requests that each state committee, after full consideration of the documents herewith submitted, will transmit to this committee promptly those modifications which to them appear desirable. In this way the work of organization may be kept going with equal facility and simul-

taneously in all parts of the country, and by this means each state can be given the early opportunity of taking under consideration the ideas and plans of its near and distant neighbors. It will then be perceived that this committee regards it as highly important to the general welfare that all the state societies should in all things work in mutual harmony, and should be furnished the facilities for the ready intercommunication of views. Up to this time each state medical society has been an isolated community working along similar lines, but each compelled to meet the same difficulties without the great advantage of having at hand the record of experience of sister societies under like circumstances. The new scheme of medical organization has as one fundamental principle the federating together of the state societies. The execution of this ideal will never be of greater service than under present conditions, when each state is anxious to perfect its mode of organization.

We hope those of our readers who are interested in the work of organization now in progress—which should include all who are interested in medicine—will read the report of the committee carefully and grasp the full meaning of all the provisions of the constitution and by-laws submitted. A thorough appreciation of these provisions will convince anyone that the profession of a state adopting these will have a machinery by which they can thoroughly organize themselves and, when organized, assist and coöperate with each other for the mutual good in various ways, and that by the adoption of the same machinery in adjunct states, the same coöperative work and mutual assistance can be carried on and on until we have an organized profession extending from the Atlantic to the Pacific and from the Canadian line to the shores of the Mexican gulf.

HIGH STANDARDS—A LAY OPINION.

To see ourselves as others see us is not always discouraging. The danger, in fact, is that sometimes it may give us too good a conceit of ourselves. Country doctors are not by any means always William McClures, but we think it probable that there are many of them who feel that they deserve some of the halo of saintship given him by the gifted Scotch clergyman. This is not profitable; self-consciousness of virtue has its ethical drawbacks. On the other hand, the current pessimism of some members of our profession is equally bad and sometimes worse. A physician who believes that the profession is going to the dogs is in danger of becoming reconciled to the belief and conducting himself accordingly, for humanity is weak and tends to adapt itself to its environment or what it believes it to be. A cynical pessimism has the very worst ethical prognosis and even a certain amount of priggery, which is by no means always hypocrisy, is in every way to be preferred, though it may be offensive.

We talk of commercialism pervading the profession and sometimes make ourselves believe that it predominates and that to the majority our code of ethics is obsolete both in letter and in spirit. That this is not the case no one ought to know better than ourselves, but outsiders sometimes emphasize this truth. In the last issue of one of the most widely circulated lay periodicals of this country—*The Youth's Companion*—we find a grateful testimony to this effect which we can take to our comfort and profit. The editor says:

A young woman doctor was recently invited to become house physician of a woman's ward in a projected hospital. A large salary was assured to her, and opportunity for advanced experimental work in surgery. Investigation showed that the hospital was a purely money-making concern, based on extensive advertising. "Reputable physicians," was her brief comment, "have higher ideals than a large salary." Another physician, of assured standing, was recently approached by a pill company with an offer of a handsome sum of money if he would prescribe its pill once a day to each of his patients. "Show the gentleman out," was all the reply that was made to the suggestion. The family doctor is more and more giving way to the specialist, but it may be truly said that the ethics and standards of physicians and surgeons were never higher nor more unselfish than they are at the present day.

This is the honest judgment of a lay observer who takes a comprehensive view of us at our best. We ourselves know that abuses and evils exist and it would be foolish to ignore them if we wish to combat them. But there is a vastly greater amount of good if we would only see it; sometimes it is most prominently seen from the outside. Within the profession we have our view more or less obscured by the littleness and selfishness we see about us—they sometimes blind us to the many estimable qualities that exist even in those we criticise. It is well, therefore, to be reminded now and then that to outsiders the medical profession as a whole is still advancing toward its high ideals.

THE ESKRIDGE-PARKHILL MEMORIAL.

The Denver and Arapahoe Medical Society has published and sent out a beautiful memorial pamphlet to Drs. Parkhill and Eskridge, giving the addresses and remarks at the memorial meeting of the Society. It is fitting that this tribute to the leading neurologist and surgeon of the mountain regions should have been thus conceived and executed, and it will be so considered by the profession throughout the country. Drs. Parkhill and Eskridge were both men of mark and of far more than local reputation, and both in their personal and professional character well worthy the remembrance of their countrymen and colleagues.

COLORADO'S ATTITUDE TOWARD CONSUMPTIVES.

THE JOURNAL has in the past noted editorially the popular agitation—as shown in newspaper articles, etc.—to exclude consumptives from certain states and territories. This has aroused, it seems to us needlessly, the indignation of the health officers of Colorado, who have come out with a statement that no such rule has been contemplated in that state or even suggested by responsible citizens. We accept this correction as far as it is a correction and believe that the good sense of the legislators will prevent any such measures, which we have already been sure had no support from the responsible health officials of the state. Nevertheless it is a fact that such laws have been talked of; as Dr. John Inglis says in a communication to THE JOURNAL of March 1, there are many in Colorado who have gone

there for their health and regained it "who now advocate the passage of laws restricting others from regaining their health in the same way." It is only one of the evidences of the weakness of human nature.

THE FOURTH DISEASE.

It is almost two years since Clement Dukes called attention to what he designated[1] the "fourth disease." He believes this disease to be distinct from scarlatina, measles and rubella. Since the publication of Dukes' paper, the subject has been much discussed among British clinicians and the writers have been divided into two sets, one denying the existence of the "fourth disease" as an entity and recognizing the cases so described as only erratic instances of the well-known dieases, especially of scarlatina and rubella, while the followers of Dukes are equally convinced that the disease is a distinct and separate one. It is probably impossible to come to a conclusion of the controversy at present. The clinical course of the various eruptive diseases is so variable that different phases or forms of one disease might be looked upon as separate diseases, and every practitioner knows how difficult it is to be certain of the character of certain atypical cases, especially at the beginning of an epidemic. This fact is brought out in a recent article by Griffith.[2] The description of the "fourth disease" is so strikingly suggestive of scarlet fever that it would be safe for the present to class it as such and especially to employ all the prophylactic measures used in the latter disease. Until we are able to separate the eruptive disease by detecting the specific agent in each or by a specific biologic reaction, there will probably be cases which different observers will not agree to call by the same name.

SANITARY MISCONCEPTIONS.

The head of the health department of the city of Cleveland, Dr. Martin Friedrichs, recently gave a graphic and complete account of the method used by him in combating an epidemic of smallpox in that city last year. This was contributed to a popular monthly, as well as to medical journals, and has excited attention both on account of the novelty of some of the measures and their success. As is usually the case with medical matters described and discussed in non-medical publications, the newspapers have taken this up and drawn their own, sometimes erroneous, deductions therefrom. The disinfection and cleansing methods which were so effective in freeing infected localities from the active contagion have even been utilized by the anti-vaccinationists as an argument that smallpox is exclusively a filth disease and that compulsory vaccination was therefore not essential in combating the disorder. This seems to be the view taken by a St. Louis daily in a recent editorial, which is a fair sample of the style of quotation of authorities by anti-vaccinationists. It ignores the fact that vaccination had been general, but the virus was not always satisfactory and had aroused prejudice and resistance, and that the cleansing and formaldehyd fumigation was taken up as a last resort for the riddance of smallpox infection where it existed. Dr. Friedrichs admits that the danger still exists and will exist till general immunity is secured by vaccination. A Chicago paper likewise shows the same tendency in one editorial while it rebukes it in another. On April 21 it called attention in a very sensible way to its St. Louis contemporary's fallacy and the next day spoke itself of "Cleveland, where Dr. Martin Friedrichs is battling against smallpox with a disinfectant as a substitute for vaccination." The ways of the lay journal in dealing with medical facts are often past finding out—at least beforehand.

1. Lancet, July 24, 1900.
2. Phila. Med. Jour., April 12; see abstract 25, p. 1110, JOUR. A. M. A., April 26.

THE TREATMENT OF SCARLET FEVER WITH THE BLOOD-SERUM OF CONVALESCENTS.

It does not seem unreasonable to hope that in the progress of time we may be provided with sera or antitoxins for the treatment of the various self-limited infectious diseases. Notwithstanding industrious examination, the exciting factors of the exanthematous diseases have as yet eluded detection. Until these are known it will be impossible to establish immunity artificially in such a way as to permit of the production of agents possessed of specific curative properties. Inasmuch, however, as the diseases under consideration terminate spontaneously, probably as a result of the generation and action within the body of antitoxic substances, and as one attack usually confers immunity against subsequent attack, it has been thought that curative effects could be obtained by the employment of the blood-serum of those convalescent from those diseases. Observations along this line have been made for several years at the clinic of Ernst von Leyden[1] in Berlin in the treatment of pneumonia, measles and scarlet fever, and the results, so far as they go, have been measurably satisfactory. The observations have been interrupted from time to time on account of lack of material, as either enough serum could not be accumulated or the cases came under notice at long intervals. Opportunity was afforded, however, for the treatment of a series of 16 cases of scarlet fever, principally in adults, the youngest patient being 12 years old. At first but 10 c.c. of serum was employed by subcutaneous injection, then 12 c.c., and finally, as it was found free from danger, 20 c.c. In three of the cases the results were brilliant, while in the remainder they were less positive. In general the course of the disease was shortened. This plan of treatment hardly commends itself on account of the natural difficulties in the way of obtaining the serum in sufficient amount and activity to be of practical and general utility. It is mentioned here only to mark one phase in the evolution of the important subject of serum-therapy.

SUGAR AND PROGRESS.

The statistics of the sugar consumption of the United States reported by the statistical bureau of the Treasury Department are striking enough to call for comment. From 33 pounds in 1870 the per capita consumption has risen to 68 pounds in 1901, an increase of more than double. This does not seem to take into account the other forms than cane and beet sugar; the immense

1. Deutsches Archiv für klinische Medicin, 73 B., p. 616.

amount of glucose preparations, together with the fruit sugars, are apparently not reckoned. The average of sixty-eight pounds per citizen means that a very large number, probably a great majority, use a considerably larger proportion daily, the larger the number who take less, the larger the amount consumed individually by the remainder. It has been calculated that one-quarter of a pound of sugar per diem is about as much as can be safely included in a healthy diet, but this figure may be found too low. The progressive increase, as shown by the statistics of the last thirty years, if it continues a few years more, will bring us well beyond such a limit, and as it is, it is probably exceeded by hundreds of thousands at the present time. Their systems appear to be fairly able to dispose of it, so far as any definite information has been received. There may be some indigestion of saccharin origin, but diabetes mellitus and glycosuria are not notably on the increase. It is probable that an active person can safely get away with a very large amount of sugar in his diet and the noted fondness of the Anglo-Saxon people for sugar has been correlated by some authorities with their specially energetic race characteristics. The Western world got along without sugar for many centuries, but they were not the centuries of progress. The passing away of the dark ages coincided with the introduction of sugar into the diet of the European peoples, and there may be more in the connection than at first appears; it may have had its humble but still important share in the change. The unexampled progress of the nineteenth century may find part of its causation in the cheapness of sugar and the great extension of its dietetic use. This deduction may be far fetched, but not more so than some other conclusions drawn from statistics.

Medical News.

CALIFORNIA.

More Plague in San Francisco.—Another fatal case of plague was reported, April 20, in San Francisco, credited as having come from Davisville.

Good Samaritan Hospital.—Eight lots have been purchased recently at Los Angeles, to be used as a site for a new building for the Good Samaritan Hospital. The building and land will cost about $64,000.

New Chief Surgeon.—Dr. Walter B. Coffey, who has been assistant to Dr. Gardner, chief surgeon of the Southern Pacific and Market Street railways, has been promoted to chief surgeon of the United Railways Company of San Francisco.

State Organization of Health Boards.—Representatives of various health boards in the state assembled at San Francisco, April 14, and effected a permanent organization with Dr. E. Von Adelung, Oakland, president, and Dr. J. A. Emery, San Francisco, secretary. A committee was appointed to formulate the rules of the new organization, whose purpose will be the betterment of sanitary and health conditions in all parts of the state.

Do "Indian Doctors" Need License?—It is reported from San Jose that W. Mohawk, "Indian medicine man," who was tried, April 9, before a jury in that city on a charge of practicing his profession without a certificate, was acquitted. The defendant could produce no authorization from the State Board of Medical Examiners, but was able to show to the satisfaction of the jury that the treaty existing between the United States and Indian tribes allowing those of the latter race to sell medicines prepared by them on their premises, exempted him from liability under the state law.

GEORGIA.

Passed for the Army.—Dr. W. Hal Moncrief, Atlanta, who served as assistant surgeon during the Spanish-American war, has successfully passed his examination for the medical department of the Army.

School Medical Examiners Organize.—The medical examiners of the Atlanta public schools met, April 15, and organized, with Dr. Luther P. Stephens, president; Dr. Arthur G. Hobbs, vice-president, and Dr. L. L. Landrum, secretary.

Georgia Pasteur Institute.—The board of governors of this institute met in Atlanta, early in April, to hear the semi-annual reports of officers. The physician's report showed 39 cases treated, with no deaths. The patients came from the following states: Georgia, 27; Louisiana, 7; Alabama, 3; South Carolina, 1; Tennessee, 1.

New Hospital Car.—The Plant System shops in Savannah have turned out a hospital car for the use of the system, which is one of the most completely furnished cars of its kind in this part of the country. It will be stationed in Waycross and will form a part of every wrecking train sent out from that point. The car is divided into several compartments in which are placed an operating table, a hanging bed, so adjusted that the motion of the car will not be felt by the patient, a case for instruments and medicines, several stretchers, and, in fact, every appliance that might be of service in taking care of the injured.

ILLINOIS.

Personal.—Drs. James H. Finch, Champaign, and Samuel M. Wylie, Paxton, sailed for Europe, May 1.——Dr. W. L. Karcher, Freeport, has returned from Philadelphia, and will be associated with Dr. Joseph H. Firestone.——Dr. Lewellyn B. Ashton, Quincy, has been appointed surgeon in the Illinois Naval Militia, with the rank of lieutenant (junior grade).

Senate vs. House.—In the sundry civil bill passed recently by the senate an appropriation was recommended for a new hospital building for Rock Island Arsenal, to cost $16,500. The house committee did not decide favorably on this recommendation. The matter now goes to a conference committee, which it is hoped will pass this much-needed appropriation.

County Must Pay.—The Attorney-General has given a decision in the highly interesting contention as to the liability for smallpox charges which arose at the meeting of the supervisors, at Galesburg, recently. His opinion is against the supervisors, who believe that the charges should be paid by the townships in which the cases occur. The Knox County Board, in 1896, passed a rule that contagious diseases should be a township charge and that the county would not be liable therefor. The Attorney-General holds that the county can not pass such a rule for the purpose of relieving the county from liability and imposing the same upon the township.

Chicago.

Senn on Fenger.—Dr. Nicholas Senn delivered an address before the students of the medical department of the University of Chicago, April 23, commemorative of the life of Christian Fenger.

To Aid Hospitals.—A musical and dramatic entertainment was given at the residence of Mrs. Potter Palmer, April 23, in aid of Maurice Porter and St. Luke's hospitals, which netted between $600 and $700 each for these institutions.

Medicine Chests for Park Police.—It is announced that Lincoln Park policemen are to be equipped with medicine chests that victims of accidents may be given aid quickly. The chests will be attached to the bicycles of the men.

Structure of the Lung.—Prof. W. D. Miller, of the University of Wisconsin, who has made special research in lung anatomy and circulation, lectured before the students and medical profession of the city at the Northwestern University Medical School, May 2, on "The Structure of the Lung and Its Blood and Lymph Supply."

The Officer-of-the-Day Once More.—The supply of recommendations is evidently being rapidly exhausted, but still the officers-of-the-day at Cook County Hospital during the past week have recommended: 1. That an additional ward be established for scarlet fever and diphtheria cases. 2. That each house physician and surgeon be clad in spotless white duck uniforms. 3. That a dressing-room be established in connection with the examining room. 4. That the wards be brightened by pictures. 5. That the system of ward cooks, recently inaugurated, be continued.

Personal.—Dr. Nicholas Senn, surgeon-general of Illinois, has been given leave of absence, and sailed, May 1, for Havre on *La Savoie*. He goes to Russia as a delegate to the International Red Cross, which meets in Moscow, this month.——Dr. Edmund

R. Moras was given a verdict against the West Chicago Street Railway Company of $45,000 for injuries sustained by him six years ago, which resulted in the amputation of his left arm at the elbow.——Dr. William G. Stearns, formerly medical superintendent of the Illinois Eastern Hospital for Insane, Kankakee, and recently connected with the neurologic departments of Northwestern University Medical School, and the College of Physicians and Surgeons, has been appointed superintendent of the Sanitorium at Lake Geneva, Wis.——Dr. Cyrille Vermeren sailed for Antwerp, April 23, on the *Kensington*, for a four months' trip to Belgium, France and Germany.

KENTUCKY.

In Memory of Dr. Cox.—The Breathitt County Medical Society at its session in Jackson, April 21, passed resolutions of sympathy regarding the sudden and untimely death of Dr. Braxton D. Cox, Jr.

Dinner to Dr. Kelly.—In celebration of the success of the recent operation on Dr. Clinton W. Kelly's eyes, members of the medical profession of Louisville gave Dr. Kelly a dinner at the Pendennis Club, April 11.

St. Anthony's Hospital Dedicated.—The formal dedicatory exercises of St. Anthony's Hospital, Louisville, were held, April 15. The building contains 12 wards, 47 private rooms, 2 operating rooms, etc., is thoroughly equipped and has cost about $100,000. The wards were opened for patients, May 1.

Sale of Poisons Restricted.—The druggists of Kentucky are in receipt of a communication from the State Board of Pharmacy, which calls their attention to recent legislative enactments of which they were not aware. The board encloses with its letter a copy of the pharmacy law of Kentucky as amended, March 17, 1902. The circular calls attention to the enforcement of the law against cocain, and expresses the emphatic determination of the board to stamp out the cocain evil. It then calls attention to section 11 of the law, which restricts the sale of poison to such an extent that it will be a difficult matter hereafter for anyone to purchase a deadly draught unless he can show good reason for its use. The section also rules against abortifacients, which have had a large sale.

MARYLAND.

Johns Hopkins Endowment Fund.—A meeting was held, May 2, at the Merchants' Club, Baltimore, to devise means to raise the balance of the $1,000,000 needed for the endowment of the Johns Hopkins University. About $700,000 has been raised, largely conditional on the raising of the balance of the $1,000,000, which must be raised by July.

Commencements.—The College of Physicians and Surgeons held its annual commencement, April 29. There were 57 graduates out of a class of 63.——Baltimore Medical College held its commencement, April 29. The graduating class numbered 92. The address was delivered by Rev. Dr. Lewis, president of Western Maryland College, Westminster.

Medical and Chirurgical Faculty of Maryland, at its one hundred and fourth annual session, April 22, 23 and 24, elected the following officers: Dr. William T. Howard, president; Drs. Samuel T. Earle and Wilmer Brinton, vice-presidents; Dr. J. Williams Lord, secretary; Dr. Thomas A. Ashby, treasurer; Drs. Harry Friedenwald, J. McPherson Scott, and Samuel Theobald, with the president, secretary and treasurer ex-officio, executive committee. Dr. J. W. Chambers was elected a member of the board of trustees. The annual banquet was held at the close of the evening meeting, on April 24. Dr. E. Miller Reid was toastmaster. The title of Dr. James Tyson's annual address was: "The Present State of Our Knowledge of Diabetes Mellitus."

Personal.—Dr. Frank Cline Ferguson has resigned his position as assistant resident physician at Spring Grove Asylum for the Insane, and has gone to his home in Greenville, S. C., to practice.——Mrs. Louise Brack, who died recently in Baltimore, bequeathed $1000 to St. Joseph's German Hospital.——Dr. and Mrs. Henry Barton Jacobs have returned to Baltimore and will spend the summer in Europe.——Dr. Leonard K. Hirshberg, of the graduating class of the Johns Hopkins Medical School, will sail for Europe, June 10. He will spend six months in German and French hospitals.——Dr. Joseph B. Saunders, coroner, Baltimore, fell and broke his right ankle, in attempting to reach the dead body of a boy who had fallen from a bridge.——Dr. T. E. Dwinelle is seriously ill from a fall received recently.——Dr. Arthur D. Mansfield sailed to-day for a summer tour of Southern Europe.

MISSOURI.

Hospital Board Selected.—The following board of managers has been selected for the new $25,000 hospital, which A. R. Levering is building for Hannibal: Cyrus Albertson, George D. Clayton, John L. Schnitzer, P. D. Fisher, L. P. Munger, T. G. Dulany, Dr. John N. Baskett, J. T. Homle, Jr., and Matthew Quirk.

Measles Epidemic.—The city physician of St. Louis reports that there are several hundred cases of measles in St. Louis, and that more deaths have resulted from the malady in the past few weeks than from smallpox during the entire time of its prevalence in the city. He recommends that houses where the disease prevails be placarded as a warning to the public.

Refused Vaccination.—Warrants were issued at Jefferson City, April 22, for the arrest of Foreman A. H. Boiles and fourteen men employed by the H. F. Balch contracting firm at work grading the Colorado Railroad in this county, for defying the State Board of Health in refusing to be vaccinated. Smallpox developed recently in the railroad camps in Miller and Cole counties and the Board of Health of Cole county, backed by the State Board, ordered a general vaccination of all persons in the infected district.

Abortion Advertisements.—After a paper by Dr. John W. Kyger, read before the Kansas City Academy of Medicine on "The Decadence of the American Race," (see page 1185 of this issue) the Academy appointed a committee to draft resolutions expressing the feeling of the regular medical profession in regard to the abatement of one of the causes of this condition and asking for the co-operation of the profession throughout the United States. These resolutions, after commenting on the decrease in the American birth-rate, continue:

WHEREAS, Without a special effort to investigate, it must have been observed by the most indifferent with what flagrant violation of all sense of delicacy the public press gives place to advertisements of nostrums and means intended to prevent or cut short pregnancy; these advertisements appearing in a column of the paper set apart for such purpose under the name of "Personal Medical Advertisement," and referred to as "Guarantees," "Sure Relief," "Sure Prevention," etc., occupying in some Sunday editions of reputable papers as much as two columns, destined to fall into the hands of all classes, and

WHEREAS, We recognize the press as a most potent factor in the education of the masses, be it

Resolved, By the Academy of Medicine of Kansas City, Mo., that we respectfully recommend that a censorship over the public press should be exercised to the end of correcting such practice of publishing advertisements as those referred to in our whereases. Be it further

Resolved, That it should be deemed of sufficient moment for the attention of the Postoffice Department of the United States of America restricting or prohibiting the distribution of such papers, periodicals or magazines through the United States mail if they continue to so prostitute their columns with such matter.

These resolutions are being sent to all the state medical associations.

Gregory Banquet.—Representative medical men of the middle west, numbering 350, assembled at the Planters' Hotel, St. Louis, on April 17, to celebrate the 78th birthday anniversary of Dr. Elisha Hall Gregory, of that city, and to honor him on the completion of fifty years of service as a teacher of medicine. The occasion was most felicitous. An editorial on the subject will be found in THE JOURNAL of April 26. The program of toasts was as follows:

"The Physician as a Citizen," Dr. A. M. Dockery, Governor of Missouri.
"An Organized Profession," Dr. Jonathan E. Tefft, Springfield, Mo.
"Greetings from Chicago," Dr. Harold N. Moyer, Chicago.
"The Evolution of Surgery," Dr. De Forest Willard, Philadelphia.
"American Surgery," Dr. Warren B. Outten, St. Louis.
"The Medical Press," Dr. George H. Simmons, Chicago.
"Our Teacher," Surgeon General Walter Wyman, Washington, D. C.
"The Teacher in Medicine," Chancellor W. S. Chaplin, St. Louis.
"The Medical Profession of Missouri," Dr. Jefferson Davis Griffith, Kansas City.
"The St. Louis Medical Society," Dr. Norman B. Carson, St. Louis.
"Ethical Ideals," Dr. William G. Moore, St. Louis.
"Dr. Gregory as a Friend," Simon Pollak, M.D., St. Louis.

Dr. Charles H. Hughes, St. Louis, presented the honored guest with a handsomely bound memorial containing the signatures of all those present. He said that it contained "the sign manual of tender and loving hands, inscribed in affectionate remembrance of your personal regard for many of us in days agone, when some of us especially needed friends. It attests also their appreciation of your personal and professional worth and fidelity, in all the varying demands of your dutiful life."

Dr. Gregory responded to the toast, "Our Guest." He said: "This is a banquet of good humor—a love feast. I am now in the midst of my great students, their renown international. Your pleasure is my happiness; your success, my pride; your gratitude, my jubilee. How intimate the relationship of pupil and preceptor; their wishes, their sympathies, their successes are inseparable. The successful teacher must have docile pupils. Instructor and learner share alike—reciprocal. Gifted students make famous colleges." Dr. Gregory then emphasized that character is a necessary foundation in the pupil for the teacher to build upon. He contrasted old and new methods of teaching, and his words gave many an insight into his own character and personality.

Governor Dockery said, among other things: "Doctor Gregory was my friend in the days of young manhood; indeed, the friend of every man, notably the young man, struggling to achieve success in life. His example and his counsel lighted up many a dark place in life's young pathway."

Chancellor Chaplin thanked Dr. Gregory "for his services as a citizen, his pure life, his high ideals, for his honest efforts. They have made him a valuable citizen in this community. Then we thank him for his manner—manner is much of the man—his ready sympathy, his full appreciation, his hearty stimulation and encouragement. These have made him dear to us. I have never hear a man say an unkind word of Dr. Gregory. I have never heard Dr. Gregory say an unkind word of any human being. We thank him, then, for what he has done and for what he is doing. We thank him for what he has been and for what he is."

Dr. W. C. Moore asked: "What is the magnet that has drawn men from hundreds of miles away, leaving their business, leaving their demands and occupations, to be present at this board to-night? Is it that he is a great surgeon? There are surgeons who can do, and have done, and will do, all that he can with the scalpel and ligature. Is it that he is a great teacher? There are other teachers dividing honor and affection with him. Is it that he has for fifty years been a teacher and practitioner in our midst? There are others as old and older than he. It is for these and one other glorious reason and that is that during all this time he has dealt justly, loved mercy, and walked humbly in the sight of God."

These brief extracts were the burden of all the words of praise which came from the hearts of the loving pupils and friends of Elisha Hall Gregory. The occasion was one long to be remembered by all present.

NEBRASKA.

Omaha Medical College held its twenty-first annual commencement exercises, April 24, graduating a class of 38. Rev. E. H. Jenks, D.D., delivered the address to the class.

Niobrara a Health Resort.—Fort Niobrara is to be an established health resort for invalid soldiers of the army for the present. Only one company of infantry will be stationed at that post, the remaining portion of the quarters being given over to the medical department of the Department of the Missouri.

Personal.—Dr. J. H. Crabbs, Fremont, has opened an office at Leavitt.——Dr. Edward E. Fauver, Julian, has sold his property and practice to Dr. U. S. Yeager and will take postgraduate work in Chicago.——Dr. Ray H. Burrell, Ashland, has located in Lynch.——Dr. Edith Hayman Saunders has been appointed physician to the State Industrial School for Women at Milford.——Dr. J. R. Buffington, Nelson, has moved to Wilbur, Wash.

NEW YORK.

Solarium for Saratoga Hospital.—Mrs. Henry B. Hyde, New York City, has provided the Saratoga Hospital with a full equipment of sun parlors.

Board of Health Organized.—The newly-appointed Board of Health of Ilion has organized, with W. W. Gay as president and Dr. John H. Hunter as health officer and registrar.

Hospital May Close.—A special meeting of the board of managers of the Cortland Hospital Association was held, April 21, to consider the advisability of closing the institution, owing to the lack of financial support.

Albany Hospital for Incurables has received $5000 from the John G. Myers estate, $1000 from Miss Jermain, and $6000 from other sources, all of which has been applied to the building fund. The management urges that further subscriptions be made, whereby the new building so much needed may be put up without delay.

New York City.

Dr. Herman Biggs has been appointed medical officer of the Board of Health at a salary of $5000 a year.

Engagement.—Dr Maxwell Benjamin announces his engagement to Miss Nettie Greenhood of New York City.

Rainbow Cot Endowed.—A service was held in the chapel in St. John's Hospital, Brooklyn, April 17, to present $3000 for the endowment of the Rainbow cot in the children's ward.

St. Mark's Hospital in Straits.—It is reported that St. Mark's Hospital is in the hands of the sheriff, and that unless more funds are quickly forthcoming, the hospital must close its doors.

Hospital Donations.—By the will of Ernest von Pape, $5000 is bequeathed to the German Hospital.——In response to appeals, nearly $1600 has been subscribed to the Memorial Hospital for Women and Children, Brooklyn.

A Woman Ambulance Surgeon.—Dr. Emily Dunning, a graduate of the Cornell Medical College last year, has the distinction of being the first hospital interne here to do duty on an ambulance. She was appointed, after competitive examination, on the house staff of the Gouverneur Hospital, and the work as an interne will include a tour of duty on the hospital ambulance.

Mount Sinai Hospital Needs Money.—Appeals have been sent out by Isaac Wallach, president of Mount Sinai Hospital, in an effort to secure $300,000 which is needed to complete its new hospital. The directors, by personal efforts, have obtained subscriptions to the building fund amounting to $1,300,000, but the additional sum is still required to cover the entire cost of ground and construction.

Automobile Ambulance Service.—Several gifts of money have been made to Mount Sinai Hospital to establish and maintain an electric ambulance service. Murry Guggenheim, one of the directors, has given $20,000, the income of which is to be the nucleus of a permanent fund to be used when the hospital moves into its new building. Henry R. Ickelheimer has given an ambulance to the hospital and Jefferson Seligman will pay for the maintenance of one so long as the hospital remains in its old quarters.

Buffalo.

Dr. Lewis S. McMurtry, Louisville, Ky., addressed the Section of Obstetrics and Gynecology of the Buffalo Academy of Medicine on "The Prophylaxis of Uterine Cancer Clinically Considered."

Dinner to Dr. Bissell.—A complimentary dinner was tendered Dr. William G. Bissell, at the Saturday Club, by the members of his class of practicing physicians to whom he has given a course in bacteriology.

Personal.—Dr. George Mills has been transferred as physician from the Manhattan State Hospital to the Buffalo State Hospital.——Dr. Jacob M. Kraus was appointed physician to the Erie County Penitentiary at a salary of $600 per year.

Law Regarding Coroners.—By a recent act of the legislature the office of coroners for Erie County, with its associated office of postmortem examiners, has been abolished and a medical examiner at a salary of $3000 and an assistant medical examiner at a salary of $2000, who are to act in conjunction with the district attorney's office, have been instituted. Dr. Earl G. Danserth, late coroner, has been appointed medical examiner, and Dr. John D. Howland has been appointed assistant medical examiner by the Board of Supervisors.

University of Buffalo Commencement.—The Alumni Association of the University of Buffalo held its twenty-seventh annual meeting in Alumni Hall of the University Building, May 2. The classes of '52, '62, '72, '82 and '92 each held a class reunion. At the regular session of the association a symposium on "Gunshot Wounds" was presented, in which Major Louis A. La Garde, M.D., U. S. A., Lieut-Col. G. Sterling Ryerson, M.D., R.A.M.S. South African Contingent, Toronto, Canada; Major William P. Kendall, M.D., U. S. A., Fort Porter, Buffalo; Roswell Park, professor of surgery, Buffalo, N. Y.; William Warren Potter, M.D., Buffalo; William C. Phelps, M.D., Buffalo; William H. Bergtold, professor of pathology, Denver, Col.; Herbert M. Hill, Ph.D., Buffalo, and Willis H. Mosher, Ph.D., Buffalo, N. Y., participated. The commencement exercises took place in Teck Theater, at 11 a. m. Rev. David J. Burrell, D.D., of Greater New York, delivered the address to the graduates.

OHIO.

Dr. J. S. Shaffer, of the graduating class of the Miami Medical College, has just been appointed house physician at the Toledo State Hospital, at a salary of $700 per year.

Illegal Practitioner Fined.—For practicing medicine in Lowellville without first having supplied himself with a certificate from the State Board of Medical Examiners, "Dr." Robert Erskine was fined $20 and costs, April 21.

Memorial to Dr. Kitchen.—The Jackson County Medical Society, at a meeting held April 8, at Wellston, adopted resolutions expressive of the loss sustained by its members, his patients and society at large by the death of Dr. Benjamin F. Kitchen.

New Doctors.—Cincinnati College of Medicine and Surgery graduated a class of 20, on April 30. The college will then go out of existence because, as the officers claim, the rigidity of the preliminary qualification under the new law is so great that the school can not be conducted on a self-sustaining basis. The college was established in 1851.——Cleveland College of Physicians and Surgeons, Medical Department of Illinois Wesleyan University, holds its commencement exercises this evening, when a class of thirty will be graduated.——Ohio Medical University, Columbus, held its tenth annual commencement exercises, April 15. Dr. David N. Kinsman, Chancellor of the University, delivered the introductory address, after which Rev. John Henry Barrows, D.D., president of Oberlin College, discussed the practice of medicine from the Christian and humanitarian view-point. Dr. John Edward Brown then addressed the graduates on behalf of the faculty, after which Hon. Fred J. Heer, president of the board of trustees, conferred medical degrees on a class of 61.——Starling Medical College, Columbus, graduated a class of 32, April 10. Hon. P. W. Huntington, president of the Board of Trustees, conferred the degrees and delivered the address of the evening, and Dr. Starling Loving, dean of the faculty, spoke for the body.——The graduation exercises of the Toledo Medical College were held April 24. Ten students received diplomas from Judge D. R. Austin, president of the college; Dr. Edmund C. Brush delivered the address of the evening on "The Place and Work of the Medical Profession," and Dr. Park L. Myers addressed the graduating class on behalf of the faculty.

TENNESSEE.

Hamilton County Hospital.—The County Court has made an appropriation of $8600 for building an addition to the present county insane hospital at Chattanooga and for remodeling the old building.

Dr. Happel's House Burned.—Dr. T. J. Happel, Trenton, secretary of the State Board of Medical Examiners and president of the Board of Trustees of the American Medical Association, suffered loss by fire of his house and its contents, including valuable papers, April 22.

Grant Medical Commencement,—The Medical Department of Grant University, Chattanooga, held its graduating exercises, April 14. The graduating class consisted of 41. The diplomas were presented by President John H. Race. Dr. John R. Rathmell delivered the address to the graduating class, and the dean, Dr. Edward A. Cobleight, announced the honors.

Condemn Water Meter System.—The Memphis and Shelby County Medical Society, at its meeting, April 15, passed the following resolutions by a unanimous vote:

Resolved, That it is the sense of this society that the free use of pure water is essential to the proper sanitation of any city, and especially so of Memphis, and that we condemn the meter system as it tends to check its full and necessary use.

Resolved, further, That the city council be respectfully solicited to oppose their introduction by the water company on any rate.

Knoxville's New Hospital.—The new City Hospital, Knoxville, erected at a cost of $75,000 through the efforts of a few women of the city, was formally opened, April 14. The medical board is composed of the following physicians: Consulting—Drs. John M. Boyd, Michael Campbell, Chalmers Deaderick and John M. Kennedy; practice—Drs. Benjamin D. Bosworth, William R. Cochrane, William Delpuech, Charles P. McNabb and David H. Williams; surgery—Drs. Benjamin B. Cates, Thomas Ap. R. Jones, Henry J. Kelso, Samuel R. Miller and Walter S. Nash; gynecology—Drs. James M. Black, J. I. Garrard, Samuel M. Miller, and Robert P. Oppenheimer; obstetrics—Drs. Samuel L. Jones and William A. McCallie; eye, ear, nose and throat—Drs. Claudius M. Capps, Charles H. Davis, John H. Kincaid and Benjamin F. Young; children—Drs. Howard I. Ijams and Ernest R. Zemp; dermatology—Drs. William S. Austin and James F. Scott, Jr.; pathology—Dr. William R. Lockett. The board, at a recent meeting, elected Dr. John M. Boyd, chairman; Dr. Benjamin B. Cates, vice-chairman, and Dr. William R. Cochrane, secretary.

GENERAL.

Personal.—Samuel H. Wainwright, M.D., medical missionary at Kobe, Japan, has returned to the United States to remain for one year and take a much-needed rest.

Physician for Lepers Wanted.—The Hawaiian Board of Health has removed Dr. Richard Oliver from his position as resident physician at the leper settlement on Molokai, on grounds of cruelty to a leper and serious neglect of duty. The board was unanimous in its action. The superintendent was also removed for neglect of duty in not preventing the cruelty mentioned. A physician is desired to fill the vacancy. The remuneration is $250 a month.

Vigorous Sanitation in Manila.—The Board of Health of Manila is entering upon some of the details of sanitation in the outline previously mentioned in these columns. The native huts in some quarters, built on lowland tracts of great filth, are to be destroyed. To render the city of Manila immune to the plague all natives are being inoculated with Kitosato's serum. Cholera figures show in Manila 555 cases and 449 deaths, and in the provinces 1599 cases and 1169 deaths.

No Yellow Fever in Havana.—This encouraging report of Major Gorgas is very welcome to the contiguous coast of the United States, and is a great tribute to the efficient sanitation. The report says: "The number of deaths from contagious diseases has been exceedingly small; from typhoid fever, only 3; scarlet fever, 1; diphtheria, 1; smallpox, none. Not a case of the last-named disease has occurred since July, 1900. The prospect for escaping reinfection from yellow fever grows more and more hopeful as the months pass, and each month strengthens the claim that is made that this disease has been eradicated from Havana. At the end of February, five months had elapsed since the last case occurred, and when we consider that for a hundred years Havana has never been free from yellow fever for a single month, this claim seems very strong. We feel confident now that Havana will have no more yellow fever until it is introduced from some infected point outside of Cuba."

Hygiene in Havana.—The health officer of Havana, Major W. C. Gorgas, Surgeon U. S. A., had a sanitary census of the city taken, which shows the existence of 1187 cases of tuberculosis, according to the *British Medical Journal.* The patients have been urged to apply to dispensaries for relief, to sleep with bedroom windows open, to avoid confining occupations, and to take proper precautions relative to the disposal of the sputa. Special attention has been given to the cigar manufactories in this respect, particularly since tubercle bacilli were found in cigars which had been made by a consumptive. Cigar workers are now required, in finishing cigars, to moisten the tips with sponges, instead of with the lips, as was formerly done. The public reader—a peculiar institution common to all Cuban cigar factories—who is hired to read newspapers, novels, etc., to the hands while at work, will in future be required to devote a portion of his time to reading matter relating to elementary hygiene and the prevention of disease. The work is essentially educational and persuasive rather than coercive and is meeting with hearty support from the Cubans.

The Association of American Medical Colleges will meet in Saratoga, Monday, June 9, at 10 a. m. The morning program will be on educational subjects and open to visitors. The members of the Association of Southern Medical Colleges are invited to be present and take part in the discussion. The business session of the Association will be taken up at 3 p. m. of the same day. The educational program opens with the president's address, by Prof. Victor C. Vaughan. There follows a symposium on the amount of knowledge of French, German, Latin, mathematics, biologic sciences, physics and chemistry that should be demanded of applicants for admission to colleges of medicine. Among the speakers are Hon. James Russell Parsons, Jr., secy. Board of Regents, Univ. of N. Y.; and Drs. George M. Kober, Georgetown University; Robert Rayburn, dean of Howard University; W. H. Earles, Milwaukee Medical College; Joseph T. Smith, Woman's Medical College, Baltimore; John L. Heffron, Syracuse Medical College; E. A. De Schweinitz, dean, Med. Dept., Columbian University; O. U. B. Wingate, Wisconsin Medical College; R. L. Whitehead, dean, Med. Dept., Univ. of N. C.; and G. W. Hubbard, dean, Meharry Medical College. Among the amendments proposed is one to strike out the provision for credit for time to graduates in dentistry, pharmacy or veterinary medicine.

Smallpox.

Connecticut: Citizens of Waterbury have requested that one of Montreal's medical health officers come to that city and settle a dispute concerning a disease which exists there. The city authorities are sending people to an isolation hospital, on the ground that they are suffering from smallpox. A number of French-Canadian citizens do not believe that the disease is smallpox at all, but only chicken-pox, and that view is supported by their doctors. Under those circumstances, they appealed to the Montreal Hygienic Committee for assistance. Dr. C. N. Valin accordingly left for Waterbury, April 23.

Illinois: The Chicago Department of Health reports that thirteen new cases of smallpox, one from Iowa, in the highly contagious stage, were discovered during the week and removed to the isolation hospital, from which eleven were discharged recovered, none died and forty-five remained under treatment at the close of the week. Since January 1 and up to April 26, inclusive, there have been 153 cases of the disease treated, 107 discharged recovered and one death. Not a single one of the 153 had ever been properly vaccinated. The most serious group developed among unvaccinated bridewell prisoners. Six cases developed among unvaccinated inmates of Zion college, one of the Dowie institutions. The lesson of Chicago's smallpox experience during the last three years amply confirms the tenets of the department's "Vaccination Creed": True vaccination always and surely protects against smallpox; nothing else does or can. Peoria County has agreed to pay one-third of the claim made against it by the city of Peoria, on account of smallpox, which amounts to $21,000.

Minnesota: The smallpox report of the State Board of Health for the week ended April 14, shows a smaller number of new cases than have been reported for any previous week this year. The report shows 161 new cases, in 37 counties, and 51 localities, and no deaths. The previous week's report showed 205 new cases, in 40 counties, and 63 localities and 3 deaths. Minneapolis reports 12 new cases, and the only other locality in the state reporting more than 10 cases is St. Cloud, with 14 new cases. St. Paul reports 1 case. Smallpox bills for the care of non-resident patients, aggregating $5,000, were passed on yesterday by the board and a report of the smallpox situation in the state since 1899 was presented. To April 14, 15,224 cases of smallpox, and 96 deaths from the disease were reported to the state board. In 1899 there were 257 cases, and 11 deaths; in 1900, 1371 cases, and 22 deaths; in 1901, 8485 cases, and 43 deaths, and in 1902, to April 14, 5111 cases, and 20 deaths.

Montana: Seven cases were reported in one family a few miles south of Billings, April 18.

Pennsylvania: In his annual report Director of Safety English of Philadelphia highly recommends an act of the legislature compelling vaccination and revaccination, a public record being kept of such vaccination, and providing that revaccination be required every five years or whenever the authorities may deem it necessary.

South Dakota: About 150 persons submitted to compulsory vaccination in the Buffalo Hump and Gold Mine saloons in Lead, at the hands of the County Board of Health, backed by the sheriff and several deputies, April 24. Cases of smallpox had been found in the saloons.

Canada: A second case of smallpox has been located among the students of Trinity Medical College, Toronto, and the college authorities are taking every precaution to see that there are no further cases. A report of the Civic Board of Health, of Montreal, shows that from last October to April of this year, 361 cases were admitted for treatment at the Hospital. Of this number 322 had never been vaccinated, 28 had been vaccinated many years ago, and bore poor marks, eight others had been vaccinated a good many years and bore good marks; while only three, or 1 per cent. of the whole, had been successfully vaccinated in seven years, and the marks in their cases showed that the vaccination had been done by amateurs, and unsatisfactorily.

CANADA.

The Free Consumptive Hospital at Gravenhurst, the gift to the National Sanitarium Association by Mr. W. J. Gage of Toronto, which will accommodate fifty patients, has been opened.

Ontario Cancer Statistics for 1900.—The total deaths recorded for this disease were 1055. There were 1041 and 975 in the two preceding years. The following gives the numbers for the past ten years, commencing with 1891: 579, 676, 678, 621, 620, 731, 927, 975, 1041, 1055. These figures show an increase of 100 per cent. between 1891 and 1900.

The Ontario Birth Rate.—According to the annual report of the Registrar-General of the Province of Ontario which has just been handed to the profession, the total number of births recorded in 1900 were 46,127 as compared with 44,705 in 1899, showing an increase of 1422 and giving a rate of 19.8 on the estimated population of 1900, or 21.1 on the actual population of the census of March 31, 1901. This rate compares favorably with that of 1891, when with a population but 68,621 less, the total births were 44,754, or 21.1 per 1000.

Closing Exercises at Bishop's, Montreal.—The ceremonies in connection with the annual convocation of the medical and dental faculties of Bishop's College were held last week. Dr. F. W. Campbell, the dean of the medical faculty, submitted his annual report. This showed that the attendance at the college was the same as last year, the students being mostly drawn from the eastern provinces of the Dominion and the neighboring states. A building fund has been instituted during the year and it now amounts to $2000. The valedictory of the medical faculty was delivered by Dr. D. K. H. Cowley.

Personal.—Dr. D. M. Anderson, house surgeon at the Toronto General Hospital and Dr. J. M. Jory of St. Catherines, Ont., have been appointed medical officers to the fourth Canadian contingent to South Africa. They sail from Halifax May 7. ——Dr. H. A. Beatty, M.R.C.S., Toronto, has had a cable from the distinguished surgeon, Mr. A. H. Tubby, offering him the surgical registrarship of Westminster Hospital, London, England. Dr. Beatty, who has just returned home after spending four years abroad in post-graduate work, had lately been senior house surgeon to the Westminster Hospital.——Dr. J. E. Tremblay of Labrador is visiting the hospitals of Montreal.

FOREIGN.

Japanese nurses, in most cases, work but eight hours a day in private cases as well as in hospital work, according to the *Am. Jour. of Nursing.* The way nurses are overworked in this country is deserving of the attention of physicians.

Campaign Against Charlatans in Germany.—The Prussian authorities have prohibited the advertisement in railroad stations and like public places of charlatans and secret remedies, to take effect after present contracts have expired.

Unna's prize this year for the best work on the finer architecture of primary carcinoma of the skin and the relations between proliferation of the epithelium and the resistance of the connective tissue, has been awarded to Drs. S. Beck and C. Krompecher, of Ofen-Pest.

The Cinematograph Operation.—Side shows in France are exhibiting the alleged cinematograph pictures of the operation on the Hindoo twins. Doyen writes to the French medical journals that the true films have never left his possession and have been exhibited only once. He has applied for legal injunction on the exhibitors in the side shows.

The Battle of the Clubs.—The physicians of Magdeburg have notified a large local sick insurance company that the 123 physicians on its list will retire and no others take their place, unless public retraction is made of an insulting speech delivered by one of the principal officers of the company at a public meeting. He is a well-known socialist and spoke very disparagingly of physicians in general.

Municipal Sanitation.—The German Public Health Association will hold its annual meeting in Munich, September 17 to 20. Among the matters to be considered are Supervision of Water Courses; Sanitation of Rural Districts; Influence of Quackery on the Health and Life of the Population; Damp Dwellings: Cause, Influence on Health and Measures for Amelioration; the Baking Trade from a Hygienic Point of View.

Congress on Venereal Diseases.—The second International Congress for the Prophylaxis of Syphilis and of Venereal Diseases will be held, as already announced, at Brussels, Sept. 1-6, 1902. Among the subjects for discussion are: What measures of public prophylaxis, under the form of legal provisions, should be taken against venereal diseases, specially with reference to the prostitution of minors, and with reference to procurers and bullies. The organization of measures of relief for sufferers. Contagion by wet nurses, midwives, arm-to-arm vaccination and instruments of labor. Penalties for transmission. Means of enlightening the youth and the general public on the social and individual dangers and on the methods of contagion. Basis for uniform statistics in all countries.

Organization of the Profession in France.—The "Association Générale des Médecins de France" was founded in 1858 for the purpose of assisting physicians in pecuniary distress, and has gradually assumed the functions of an insurance against

old age, disease and death. One of its features is that it guarantees to pay the premiums on the life insurance of its members when they are temporarily incapacitated from doing so. Brouardel has recently been elected president, and a bimonthly bulletin is to be issued to contain nothing but the news of the association. The premiums range from 12 to 96 francs a year. The latter sum entitles one to a pension of 1200 francs after 60 years of age, if commenced at 25. A premium of 54 francs insures against sickness, and entitles to a pension of 1200 francs in case of incurable illness. The association is making great efforts to induce young physicians to become members. The local associations are the branches of this general organization, which has now a capital of 2,473,066 francs, and disbursed last year 89,800 francs in pensions, etc.

The German Surgical Congress, held in Berlin on April 2-5, was well attended. After the president's address, the subject of "First Dressing of Wounds on the Battlefield" was opened by Professor von Bruns, of Tübingen. He prefers a paste for dressing bullet wounds as it will aid in the formation of a scaband will absorb the exudation. Bertelsmann of Hamburg and von Bergmann of Berlin said that bullet wounds often heal without suppuration. Others in the discussion showed sterile wound dressings ready for instant use on the field. Voelher of Heidelberg reported cases of fractures treated by suture, and recommended the procedure in cases where reposition of the fragments is difficult and where two bones are simultaneously broken. The "Etiology of Cancer" was the subject opened by Gussenbauer of Vienna. Although he was prepared to believe in the parasitic nature of carcinoma, no parasites had as yet been demonstrated in the growth which could be accepted as causal organisms. Von Kahlden of Freiburg held that recurrence was only possible when endothelial cells were left at the site of operation, or when the vascular system contained actual carcinoma cells. A cancer might exist in more than one location, and, after the removal of one focus, develop from another which had not before been recognized. Petersen of Heidelberg reinforced the above statement and regarded the giant cell as a protective cell which the organism used to kill off the cancer cells. Professor von Mikulicz of Breslau discussed 146 cases of carcinoma and sarcoma of the intestines. He considered that this form of new growth frequently remained latent for a longer period than others. In 83 cases not complicated by intestinal obstruction mortality was 30 per cent. after operation. He operated in two stages to prevent peritonitis. Hochenegg of Vienna reported 282 cases of carcinoma of the large intestine, 237 being rectal. In 25 per cent. lasting cure resulted from operation. Kronlein of Zurich discussed 264 operations he had made for gastric cancer and advised operation in all possible cases. Noske of Leipzig argued that every parasite failed of proof that it was either of usual occurrence or causal. Doyen of Paris and Schuller described certain parasites. Oscar Israel of Berlin denied that any parasite had aught to do with cancer, and the president humorously asked if any other gentleman happened to have any cancer parasites. Peritonitis and perityphlitis were considered by Korte of Berlin, Rehn of Frankfurt, Sprengel of Brunswick and others. Rehn urged that delay in operating when suppuration existed in the abdomen was dangerous, and that all deaths after operation are not due to the operation. Sonnenburg of Berlin discussed lung complications of appendicitis. In his experience pneumonia was uncommon, but emboli were frequent. He found no ground for blaming anesthesia or cold, but considered circulatory defects to blame. Bunge of Königsberg described his modification of Talma's operation for the relief of ascites. He sutures the omentum and other organs to each other and to the abdominal wall to lessen the pressure on the portal system. An instructive discussion on gastric ulcer followed. Kummel of Hamburg described the value of determining the freezing point of urine before operating on the kidney. When the freezing point rises above 0.6 C., it is not safe to operate. The normal is 0.56 C. One evening of the congress was devoted to lantern pictures. Among these were skiagraphs of anomalies of the patella by Joachimsthal of Berlin; a new instrument for examining for renal calculi by *x*-rays, shown by Shonberg of Hamburg; method of crippling the feet of Chinese women, shown by Perthes of Leipzig; cinematographic representations of operations by Doyen of Paris, including the severing of the Hindoo twins. These were very interesting and greatly enjoyed by the congress.

LONDON LETTER.

Hard Facts for the Antivaccinationists.

The number of cases in hospital is 1437 against 1567, 1526 and 1522 in the 3 preceding weeks; 274 new cases were admitted during the week, against 449, 389, 376 in the 3 preceding weeks. A most important analytical table of the deaths which have occurred from the epidemic has been issued by the Registrar-General and is a severe blow to the antivaccinationists. The deaths number 1015. Of these, excluding 66 cases in which vaccination or revaccination was not performed until after the patient's infection by smallpox, there was only one death within 10 years of the patient's vaccination. Moreover, this death occurred in an infant aged 13 months who was certified to have been imperfectly vaccinated. Of 457 deaths of persons vaccinated only in infancy not one occurred until the attainment of the tenth year and only 5 between 10 and 15. Of 398 deaths of unvaccinated persons 56 occurred under one year, 112 between 1 and 5 years, 58 between 5 and 10, 37 between 10 and 15. The table further shows that of persons under 20 years of age who were not protected by vaccination, 348 died of smallpox, while only 22 deaths occurred among those of the same age who were vaccinated in infancy. At ages over 20 there were 103 deaths of unvaccinated persons and 448 deaths of persons who had been vaccinated in infancy (including 13 who had been revaccinated only after infection).

The Investigation of Cancer.

The scheme for the investigation of cancer, to which we have previously referred in THE JOURNAL, is now taking definite shape. A fund of $500,000 is to be raised to promote investigation into the causes, prevention and treatment of cancer. Steps will be taken to, 1, equip laboratories to be devoted exclusively to cancer research; 2, encourage researches on cancer within the United Kingdom or British dominions beyond the seas; 3, assist in the development of cancer research departments in various hospitals and institutions approved by the executive committee; 4, provide means for investigation in various other directions into the causes, prevention and treatment of cancer. Should the object of the fund be attained by the discovery of the cause and nature of cancer and of an effective method of treatment, the Royal Colleges, with the consent of the trustees, shall be empowered to utilize the fund either for equipping with the necessities for such treatment such hospitals as they may select or for forwarding research into other diseases. The fund will be administered by a president, vice-presidents, five trustees, honorary treasurer, general committee and executive committee. Of the first trustees three may be nominated by the donors of sums of $5000 and one each by the Royal Colleges of Physicians and Surgeons. The general committee will consist of one member to be nominated by the local Government Board, one nominated by the colonial office, one nominated by the Royal Society, one nominated each by the Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, Faculty of Physicians and Surgeons of Glasgow, Royal College of Physicians of Ireland, and Royal College of Surgeons of Ireland, the Veterinary Colleges of London, Edinburgh and Dublin, and donors of sums of $5000 and upwards. The executive committee may make contributions towards the development of the cancer research department of the Middlesex Hospital or a similar department of any other hospital if established. The working staff will consist of a general superintendent of the investigation, who may be the director of the central laboratory, assistants and other persons who may be appointed to make special investigations. There will also be a consulting staff consisting of persons skilled in scientific investigation, representatives of the various home and colonial government departments, physicians and surgeons attached to hospitals, statistical experts and others appointed by the executive committee.

Correspondence.

The Roentgen Rays in Detecting False and True Gems.

STERLING, ILL., April 21, 1902.

To the Editor:—About one year ago, in conjunction with a local jeweler, I exposed a number of gems, both real and imitation, to the *x*-rays. On developing the plate, we found that the image or shadow of the real gems was very dim and indistinct, while the shadow of the false gems was dark and very sharp, showing a well-marked difference in all instances; on carrying the experiments further we found that the shadows of all the stones we examined—and we examined all the more familiar ones—were invariably faint and indistinct, while the shadows of all the imitation ones were well marked and bold. We paid no particular attention to these experiments, as, while neither of us had ever seen any mention of this use of

the Roentgen rays, we thought that surely some persons had made this discovery before. But now after a year has elapsed and we have not seen any allusion to this method of determining the difference between true and imitation gems, I take the liberty of stating these facts to you, for if it is not known (which I can hardly believe), it is well worth bringing to attention, and if it is known it will do no harm to bring it into notice again. Yours respectfully,

HARRY E. SMALL, M.D.

Brigadier-General George M. Sternberg.

PHILADELPHIA, April 24, 1902.

To the Editor:—Believing as I do that our Committee on National Legislation is engaged upon a most important work in behalf of the medical profession and the people of this country, it appears to me that every member of the American Medical Association should do whatever lies in his power to loyally uphold the hands of the committee and to assist it in attaining its objects. Acting entirely upon my own responsibility, I beg to respectfully suggest to my fellow members of the Association that an opportunity is afforded, at the present time, for displaying our full confidence in the committee and also of doing an act of justice to an ex-president, who is one of our most distinguished and honored colleagues, Brigadier-General George M. Sternberg, U. S. A. A bill has been submitted to Congress that will, if it passes, enable the President to appoint General Sternberg a major-general of the United States Army for the purpose of placing him upon the retired list. This bill has received the hearty endorsement of the Committee on National Legislation. To come to the immediate object of the present communication, I would ask each member of the Association, in all parts of the country, to at once communicate with the representatives from his district, or state, announcing the fact that this bill has the hearty support of the American Medical Association, and that its passage would be received as a marked act of favor to the profession and especially to the writer of the letter. As General Sternberg's time expires on June 8, the necessity of immediate action is evident. Very truly yours,

FRANK WOODBURY.

218 South 16th St.

To Congressmen and Senators.

ST. LOUIS, April 24, 1902.

To the Editor:—Copies of the following letter have been sent to our congressmen and senators. Very truly yours,

C. H. HUGHES, M.D.

ST. LOUIS, April 19, 1902.

My dear Sir:—You would, I am sure, please the medical profession of the country by favoring a broad representative bill for a National Board of Health, representing the whole profession, as well as the Army, Navy and Marine-Hospital Service, with its chief eligible to a place in the President's cabinet.

The presidents of the Academy of Medicine and American Medical Association might be members, and one member might be nominated by the Senate and one by the House of Representatives for the people and states to make up the composition of the first board. One representative might come also from the American Association for the Advancement of Science. The present board scheme is too much and too exclusively Army, Navy and Marine. Very truly yours, C. H. HUGHES, M.D.

Married.

WILLIAM A. DAVIS, M.D., to Mrs. Bertha Winter Davis, at Baltimore, April 9.

CARL G. SWENSON, M.D., to Miss Christine Johnston, both of Chicago, April 17.

WALTER A. RUSSELL, M.D., to Miss Mary H. Quinn, both of Providence, R. I., April 15.

HENRY A. KORNEMANN, M.D., to Miss Angeline Schulte, both of Newark, N. J., April 17.

WILLIAM G. DICE, M.D., Xenia, Ohio, to Miss Gertrude McClure of Toledo, Ohio, April 7.

J. T. SNIDER, M.D., Jewells, Ga., to Miss Della Graves Nisbet of Riverdale, Ga., April 10.

WILLIAM DOUGLASS, M.D., Macon, to Miss Mary Eleanor Johnson, at Charlottesville, Va., April 9.

JEREMIAH N. MARTIN, M.D., Mamaroneck, N. Y., to Miss Edyth Connery of New York City, April 12.

EUGENE B. SANGER, M.D., Surgeon-General of Maine, Bangor, to Miss Ethel Field, also of Bangor, April 16.

HERBERT R. DREWRY, M.D., Lambert's Point, Norfolk, Va., to Miss Annie B. Purnell of Raleigh, N. C., April 17.

THOMAS GREAR DUNLAP, M.D., Louisville, Ky., to Miss Ida Elizabeth Berd of Atlantic City, N. J., April 11.

GEORGE E. HILGARD, M.D., captain and assistant surgeon, I. N. G., to Miss Laura Ropiequet, both of Belleville, April 8.

EDWARD GARNETTE HANK, M.D., Tannerscreek, Va., to Miss Bessie Virginia Guy of Salem, Norfolk County, Va., April 16.

WILLIAM CHURCH GRISWOLD, M.D., formerly of Nassau, but at present an assistant surgeon in the Army, under orders to proceed to the Philippines, to Miss Helen Ruth Stout of Albany, N. Y., April 17.

Deaths and Obituaries.

Meredith Clymer, M.D. University of Pennsylvania, 1837, died at his residence in New York City, April 20, aged 85. He was a grandson of George C. Meredith, one of the signers of the Declaration of Independence. After graduating in medicine he studied in Dublin, London and Paris, and then located in Philadelphia, where he was consulting physician-in-chief to the Cholera Hospital and professor of practice of medicine in the Hampden-Sidney Medical College, Richmond, Va. In 1851 he moved to New York, and was given the chair of practice in the University of the City of New York. At the outbreak of the Civil war he offered his services and was made surgeon of volunteers and later medical director of the Department of the South. In 1871 he was made professor of nervous and mental diseases in Albany Medical College. He was an accomplished teacher and writer. His contributions to medical literature were numerous, both in the way of original matter and as editor of various works. His latest original contribution appeared in 1874, on "The Legitimate Influence of Epilepsy Upon Criminal Responsibility." He was a member of the New York County Medical Society and twice served as president of the New York Neurological Society. He also served three terms as senior vice-president of the Alumni Association of the Medical Department of the University of Pennsylvania. He was associate editor of the *Journal of Nervous and Mental Disease* for a number of years.

Theodore Walser, M.D. Jefferson Medical College, Philadelphia, 1851, assistant sanitary superintendent of the Department of Health, Richmond Borough, died at his home in New Brighton, April 23, after an illness of three weeks, aged 77. Dr. Walser was the Nestor of the medical profession on Staten Island, having practiced there since 1857. He was a native of Germany. He held many public offices. In the early sixties he was deputy health officer of the port of New York. For many years he was health officer of the old village of New Brighton and held that position up to the time of consolidation. During the smallpox epidemic in New York years ago he volunteered his services to the state, and during the cholera scare he did good service on Hoffman and Swinburne islands. Dr. Walser was one of the founders of the Smith Infirmary.

Cephas L. Bard, M.D. Jefferson Medical College, Philadelphia, 1866, the first American physician to locate in Ventura, Cal., a member of the American Medical Association, a member and some-time president of the Southern California Medical Society and of the Medical Society of the State of California, and one of the most prominent men of Southern California, died at the Elizabeth Bard Memorial Hospital, Ventura, April 20, from malignant disease, aged 59. The hospital in which he died was established by his brother, United States Senator Bard, and himself, in memory of their mother, and his death was the first to be noted on the hospital records.

Julius Wise, M.D. University of Michigan, Ann Arbor, 1872, formerly city physician of Cincinnati, who during the yellow fever epidemic in Memphis in 1878 had charge of the quarantine camps, and did noble volunteer work, as a result of which his health became so impaired that he was unable to resume practice, died at the Baptist Hospital, Chicago, April 19, after a short illness, aged 51.

Franklin B. Tuttle, M.D. Yale University, New Haven, 1863, for nearly forty years a practitioner of Naugatuck, Conn., some-time president of the New Haven County Medical Association and of the Naugatuck Medical Association, and member of the legislature, died at his home in Naugatuck, April 21, from neuralgia of the heart, aged 60.

Charles Wirgman, M.D. Jefferson Medical College, Philadelphia, 1877, a well-known physician of Philadelphia, a trustee of Jefferson Medical College and visiting physician at the Children's Howard and Orthopedic hospitals, died at his residence, April 19, after a long illness, aged 55.

D. R. Walker, M.D. Medical College of Indiana, Indianapolis, 1873, died, April 16, from congestion of the brain and stomach, at his home in Reese Mill, Boone County, Ind. He had never fully recovered from a stroke of paralysis in St. Augustine, Fla., in January last.

Alexander H. Henderson, M.D. University of Nashville, 1873, prominent as a physician in Starke County, Ind., who had represented that county at every Republican State Convention since 1872, died suddenly at his home in Knox, April 21.

George F. Hulbert, M.D. Washington University, St. Louis, 1886, a prominent physician of St. Louis, formerly in the United States Marine-Hospital service, died at St. John's Hospital, St. Louis, after a prolonged illness, April 22, aged 47.

James E. McDavitt, M.D. Washington University, St. Louis, 1855, one of the oldest practitioners of Western Illinois, died suddenly at his home in Quincy, from uremic coma, April 22, aged 75. He retired from active practice in 1898.

Henry Allen, M.D. Rush Medical College, Chicago, 1865, one of the earliest settlers on the Otoe Reserve, who had practiced medicine in Nebraska from that time until 1892, died at his home in Odell, April 16, aged 78.

Harry P. Hinchliffe, M.D. University of Pennsylvania, Philadelphia, 1894, a popular physician of Elkton, Md., died, April 19, two days after an operation for appendicitis, at his home in Elkton, aged 30.

Nathaniel M. Freeman, M.D. Yale University, New Haven, Conn., 1852, a wealthy retired physician of New York City, died suddenly from heart disease at the Aschenbrodel Club, in that city, April 18, aged 81.

Yancey L. Poole, M.D. Atlanta (Ga.) Medical College, 1889, an esteemed practitioner of Union County, S. C., died from appendicitis at his home in Union, April 21, after a short illness, aged 35.

Edward A. Maris, M.D. University of Maryland, Baltimore, 1841, a venerable and prominent practitioner of Baltimore, died at his home in that city, April 20, after an illness of two weeks, aged 81.

E. Harold Williams, M.D. College of Physicians and Surgeons, Baltimore, Md., 1888, died at his home in Hamilton, Ga., April 19, from consumption, after an illness of one year.

Abram Harshberger, M.D. University of Pennsylvania, Philadelphia, 1868, a native of Zion, Centre County, Pa., died suddenly at his home in Philadelphia, April 10, aged 62.

William H. Masterson, M.D. Detroit College of Medicine, 1893, a colored physician of Madisonville, Ky., died in his office in Madisonville, Ky., April 21, after a short illness.

William H. Keyes, M.D. University of Michigan, 1879, died suddenly at West Bay City, Mich., from heart disease.

Edwin A. McArthur, M.D., died at his home in Columbus, Ohio, from blood poisoning, April 14.

Association News.

Railroad Rates for Saratoga Meeting.

The Committee on Transportation has been making every endeavor to secure a railroad rate of one fare for the round trip with a thirty-day time extension, but has been unable to have the railroads grant the request. The Trunk Line Association, which in this instance under railroad regulations has the deciding of the matter of rates, etc., has finally decided to grant a rate of a fare and a third on the certificate plan, with an extension time limit to July 2, and make a fifty-cent charge on all tickets extended beyond June 16, that is to say, those beginning their return journey not later than June 16 will not be charged the fifty-cent fee extra, but in all cases where the return trip is begun after June 16, and on or before July 2, a fifty-cent fee will be charged. In purchasing tickets to this meeting it is necessary to secure at the time the ticket is purchased a certificate entitling the holder to the reduction on the return ticket. All certificates must be presented to Dr. William E. Swan at Saratoga for his visé and the stamp of the railroad agent detailed at the meeting, on either June 11, 12 or 13, before presentation to the local ticket agent for the reduced rate returning. Those who desire the time extension beyond June 16, in addition to having their certificates viséed and stamped as herein directed, must also deposit their certificates with the railroad agent and make application for the desired extension, paying the fifty-cent fee. The trunk lines have agreed to extend the rate to the American Academy of Medicine which meets at Saratoga, June 7 to 9, and accept the visé of Dr. Swan on their certificates, as herein indicated, and the same time extension will be granted that society, therefore tickets to either meeting will be on sale in the Trunk Line Territory for the going trip from June 4 to June 12 or 13. At this writing none of the other passenger associations have concurred in this rate except the New England Railroad Association and the Central Passenger Association. It is expected, however, that the other associations will eventually agree to the rates and terms of the trunk lines and will sell tickets in their territory at a date early enough to permit arrival at Saratoga three days before the opening of the combined meetings. Later information in the matter of rates will appear regularly in THE JOURNAL.

H. L. E. JOHNSON, M.D.,
Chairman Committee on Transportation.

Special Report of the Committee on National Legislation.

The following communication has been sent to the delegates who attended the third annual conference of this committee and to the secretaries of the medical societies of the several states and territories. All members of the American Medical Association are requested to assist this committee in their efforts to secure favorable action by Congress on the various matters mentioned:

The Third Annual Conference of the Committee on National Legislation, held at Washington, D. C., April 10-11, decided to publish in THE JOURNAL of the American Medical Association, a synopsis of its work, and each delegate was requested to present the same to his society at the earliest opportunity. Please refer to THE JOURNAL of April 19, pp. 1023-25 for said report, to which I hereto add the special recommendations for the U. S. Navy which were approved by the conference, but which by error do not appear in the synopsis published, viz.: S. Bill 4112, providing for an increase in the medical corps of the navy; H. R. Bill 8194, equalizing the pay of officers of the line, medical corps, pay and chaplin corps of the navy with officers of corresponding rank in the army and marine corps; the bill providing for a navy hospital at Annapolis, and the bill increasing the naval hospital corps. Your attention and that of your society is especially called to the bill proposed by the conference, which promotes and honors Surgeon-General Sternberg, Ex-President of the American Medical Association, known as S. 5213, and H. R. 13725, the Gallinger-Grosvenor Bill, providing for the selection and retirement of medical officers in the army. The Committee on National Legislation hereby requests each member of your society to write immediately to his own senator and representative, and also to Senator Gallinger and Congressman Grosvenor, urging the immediate passage of S. Bill 5213 and H. R. Bill 13275.

Very truly yours,
[Signed] H. L. E. JOHNSON, M.D., Chairman.

Societies.

COMING MEETINGS.

American Medical Association, Saratoga Springs, N. Y., June 10 to 13.

Nebraska State Medical Society, Omaha, May 6-8, 1902.
Texas State Medical Association, Dallas, May 6-9, 1902.
Kansas Medical Society, Lawrence, May 7-9, 1902.
American Therapeutic Society, New York City, May 13, 1902.
Utah State Medical Society, Salt Lake City, May 13-14, 1902.
Oklahoma Territory Medical Association, Oklahoma City, May 14, 1902.
Arkansas Medical Society, Little Rock, May 13-15, 1902.
New Hampshire Medical Society, Concord, May 15-16, 1902.
Illinois State Medical Society, Quincy, May 20-22, 1902.

American Surgical Association, Albany, N. Y., June 3-5, 1902.
Medical Association of the State of Missouri, St. Joseph, May 20-22, 1902.
Kentucky State Medical Society, Paducah, May 7-9, 1902.
Arizona Medical Association, Tucson, May 21-22, 1902.
Medical Society of West Virginia, Parkersburg, May 21-23, 1902.
Medical Association of Montana, Anaconda, May 21-22, 1902.
Iowa State Medical Society, Des Moines, May 21-23, 1902.
Indiana State Medical Society, Evansville, May 22-23, 1902.
American Pediatric Society, Boston, May 26-28, 1902.
American Laryngological Association, Boston, Mass., May 26 28, 1902.
American Gynecological Society, Atlantic City, May 27, 1902.
Connecticut Medical Society, New Haven, May 28-29, 1902.
Ohio State Medical Society, Toledo, May 28-30, 1902.
American Laryngological, Rhinological and Otological Society, Washington, D. C., June 2-4, 1902.
Louisiana State Medical Society, Shreveport, June 3-5, 1902.
Medical Society of the State of North Carolina, Wilmington, June 3-7, 1902.
Maine Medical Association, Portland, June 4-6, 1902.
Wisconsin State Medical Society, Milwaukee, June 4-6, 1902.
Rhode Island Medical Society, Providence, June 5, 1902.
South Dakota State Medical Society, Scotland, June 4-5, 1902.
Association of Military Surgeons of the United States, Washington, D. C., June 5-7, 1902.
American Orthopedic Association, Philadelphia, Pa., June 5-7, 1902.
American Academy of Medicine, Saratoga Springs, N. Y., June 7, 1902.
American Association of Life Insurance Examining Surgeons, Saratoga Springs, June 9, 1902.
National Confederation State Medical Examining and Licensing Boards, Saratoga Springs, N. Y., June 9, 1902.
Association of American Medical Colleges, Saratoga Springs, N. Y., June 9, 1902.
American Climatological Association, Los Angeles, Cal., June 9-11, 1902.
American Proctological Association, Saratoga Springs, N. Y., June 10, 1902.
Medical Society of Delaware, Newark, June 10, 1902.
Massachusetts Medical Society, Boston, Mass., June 10-11, 1902.
Colorado State Medical Society, Pueblo, June 17, 1902.
American Medico-Psychological Association, Montreal, June 17-20, 1902.
Minnesota State Medical Society, Minneapolis, June 18, 1902.
Medical Society of New Jersey, Atlantic City, June 24-26, 1902.
Washington State Medical Society, Tacoma, June 24-26, 1902.
Michigan State Medical Society, Port Huron, June 26-27, 1902.

Kankakee Valley District Medical Society.—This Society will meet at Knox, Ind., May 6.

Plains (Texas) Clinical Society.—This Society, which was organized at Amarillo; in January, with a membership of 16, held its regular monthly meeting at Amarillo, April 9. It now has a membership of 23.

American Climatological Association.—The nineteenth annual meeting of this Association will be held in Los Angeles, Cal., June 9-11, at the Westminster Hotel, under the presidency of Dr. Samuel A. Fisk, Denver.

Carbon County (Pa.) Medical Society.—At the annual meeting of this Society, at Mauch Chunk, Dr. P. D. Keiser, New Mahoning, was elected president; Dr. David R. Davis, Lansford, vice-president, and Dr. James B. Tweedle, Weatherly, secretary and treasurer.

Ohio State Pediatric Society.—This Society, which holds its next annual meeting on May 27 and 28 at Toledo, announces that in addition to the regular program a special address will be given by Dr. F. X. Dercum, Philadelphia, on "Mental Disorders of Children."

Boone County (Ark.) Medical Society.—At the annual meeting of this Society, held in Harrison, April 8, Dr. Charles L. Burns, Harrison, was elected president; Dr. James R. Potts, Bellefonte, vice-president; Dr. Hugh L. Routh, Batavia, treasurer, and Dr. Ezra L. Evans, Harrison, secretary.

Tarrant County (Texas) Medical Association.—The physicians of Fort Worth met on April 14 and organized a county medical society, with the following officers: Dr. James T. Feild, president; Drs. James L. Cooper, Robert B. Grammer and Charles P. Brewer, vice-presidents, and Dr. Barber, secretary and treasurer, all of Fort Worth.

Hartford County (Conn.) Medical Society.—The one-hundred-and-tenth annual meeting of this Society was held at Hartford, April 16. Dr. Nathan Mayer, Hartford, was elected president; Dr. Howard O. Allen, Broadbrook, vice-president; Dr. William G. Craig, Hartford, clerk; Dr. Walter R. Steiner, Hartford, county reporter, and Drs. Philo W. Street, Suffield, Charles D. Alton, Hartford, and Joseph A. Kilbourn, Hartford, were elected censors.

Hampden District (Mass.) Medical Society.—This Society held its annual meeting and banquet at Springfield, April 15. The following officers were elected: Dr. Stephen A. Mahoney, Holycke, president; Dr. James W. Hannum, Ludlow, vice-president; Dr. Harry C. Martin, Springfield, secretary and treasurer; Drs. George L. Woods, Springfield, Carl A. Allen, Holyoke, Harvey W. Van Allen, Springfield, Robert P. M. Ames, Springfield, and Daniel E. Keefe, Springfield, censors, and Dr. J. Philip Schneider, Palmer, commissioner of trials.

Pennsylvania Society for the Prevention of Tuberculosis.—The annual meeting of this Society was held in Philadelphia, April 9. Requests received from various parts of this country and Canada for information show an increasing interest in the subject. Dr. Guy Hinsdale, after three years of service as president, declined re-election, and Dr. Howard S. Anders was elected. The laity has a good representation in the management of the Society. Among the vice-presidents are Drs. J. Solis-Cohen, Benjamin Lee, S. A. Knopf, William Moss, Samuel G. Dixon, and Lawrence F. Flick. The secretary is Dr. Alexander H. Davisson.

Mississippi Valley Medical Association.—The Chairman of the Committee of Arrangements for the twenty-eighth annual meeting of this Association, Dr. A. H. Cordier, Kansas City, has announced the dates of the next meeting in Kansas City as October 15 to 17. The president, Dr. S. P. Collings, Hot Springs, Ark., has announced the orators for the meeting: Dr. C. B. Parker, Cleveland, to deliver the address in surgery and Dr. Hugh T. Patrick, Chicago, the address in medicine. A cordial invitation is extended every physician in the United States, but especially of the Valley, to attend this meeting and take part in its proceedings. Titles of papers should be sent the secretary, Dr. Henry Enos Tuley, 111 W. Kentucky Street, Louisville, Ky., at as early a date as possible.

New Mexico Medical Society.—The twenty-first annual session of this Society was held at Albuquerque, April 16. The meeting was called to order by President Dr. George W. Harrison, Albuquerque, and the hospitality of the city was offered to the members by Mayor Charles F. Myers. Dr. James H. Wroth welcomed the visitors on behalf of the profession of Albuquerque, and Dr. William R. Tipton, Las Vegas, responded for the Society. The president's address was on "Medical Organization." Among the most important papers presented was one by Dr. George C. Bryan, Alamagordo, president of the Territorial Board of Health on "Licensure of Physicians in New Mexico." This evoked extended discussion and a resolution was finally adopted recommending that the Territorial Board of Health prepare a list of medical colleges whose graduates would be accepted without re-examination. The election of officers resulted as follows: Dr. Walter G. Hope, Albuquerque, president; Drs. George C. Bryan, Alamagordo, Thomas P. Martin, Taos, and Edwin B. Shaw, East Las Vegas, vice-presidents; Dr. J. Frank McConnell, Las Cruces, secretary, and Dr. George W. Harrison, Albuquerque, treasurer. The Bernalillo County Medical Society entertained the members at a banquet in the evening.

TRI-STATE MEDICAL SOCIETY (IOWA, ILLINOIS AND MISSOURI).

Proceedings of the Tenth Annual Meeting, held in Chicago, April 3 and 4, 1902.

(Concluded from p. 1103.)

The Society convened at the Great Northern Hotel, under the Presidency of Dr. John C. Murphy of St. Louis, Mo.

Acute Delirium.

DR. FRANK P. NORBURY, Jacksonville, Ill., read this paper and said that acute delirium is an etiologic problem upon which the leading authorities do not agree. It may not be regarded as an entity, but a combination of pathologic conditions, chief of which is an encephalitis more or less intense and almost invariably fatal. The tendency is of late to regard the disease as an infection, but as yet no pathogenic bacteria, family group have been isolated. The Russian school, following the lead of the Italians, have made reports, conclusive in their deductions, endorsing the infection theory. From a clinical study of three cases, one of which came to autopsy, Dr. Norbury endorses the infection theory, and says the disease is comparable in its clinical history to other of the severe infections. The question of differential diagnosis is aided by laboratory methods.

Diagnosis of Cancer of the Breast.

DR. ALFRED ROULET, St. Louis, Mo., read a paper with this

tit'e. He said there is no doubt that in its early stages every cancer of the breast is a strictly localized condition and that its successful treatment depends entirely upon early diagnosis and immediate radical extirpation of the malignant focus. In advanced cases the diagnosis is easily made, but in the early stages it is often exceedingly difficult to distinguish cancer from abscess, syphilis, tuberculosis, sarcoma, cysts and the benign tumors. Text-book distinctions do not hold in practice. The diagnosis can only be made after most thorough physical examination and a searching investigation of the history.

Multiple Neuritis.

DR. DANIEL R. BROWER, Chicago, said, in a paper on this subject, that the diagnosis of multiple neuritis in its classical form was very simple, but at the bedside there were few classical cases, so that errors in diagnosis were frequent. As the prognosis of multiple neuritis is usually favorable under proper treatment and the prognosis of the diseases with which it was usually confounded is very bad, a correct diagnosis is of great importance. The principal poisons producing a multiple peripheral neuritis are alcohol, lead, arsenic and the toxins of the various micro-organisms, especially those that produce diphtheria, influenza, typhoid fever, gonorrhea, syphilis, leprosy and beri-beri.

In the typical cases of multiple neuritis there is symmetrical localization of motor, sensory and vasomotor symptoms. In the earlier stages the symptoms are the result of irritation of the nerve; while the later symptoms are those of destruction. In the beginning there are muscular cramps and spasms, shooting pains and paresthesia. Later on, paralysis and anesthesia.

The diagnosis of alcoholic neuritis was based upon the evidences of chronic alcoholic poisoning, found in the digestive, circulatory and nervous systems. The onset was usually insidious, weeks or months being necessary for its full development. The earlier symptoms were numbness, tingling, muscular cramps, tremors and vasomotor disturbances, such as cold or clammy hands or feet, or a hot and burning sensation in the same extremities. In a few cases there was marked psychic disturbance.

Arsenical neuritis greatly resembles alcoholic neuritis. The differentiation from alcoholic neuritis was made in the few cases he had seen by the absence of any evidences of alcoholism, by the edema of the eyelids, pigmentation, epigastric pain and nausea. These cases were the result of the continued use of large doses of Fowler's solution and the tremors were more marked than in alcoholic neuritis. The knee-jerks and typical reflexes were present. Some cases were the result of the combined action of alcohol and arsenic, as evidenced by the remarkable epidemic that occurred in Manchester, England, in 1900, from beer. The source of arsenic was traced to sugar used in brewing. Recent investigation by Ross would seem to indicate that arsenic may be the principal etiologic factor, although hitherto it has been regarded as microbic.

The treatment of the several forms of neuritis has in common, rest, the relief of pain and insomnia; also the use, in the early stages, of the constant galvanic current of low amperage, applied daily to the nerve trunks involved, and attention to elimination by skin, bowels and kidneys. The alcoholic patients require the bromids, with codein in such doses as necessary to secure a reasonable degree of comfort, and the use of nerve tonics, of which strychnia is the most serviceable. In alcoholic neuritis it is very essential to withdraw at once and entirely alcoholic stimulants. In the treatment of beri-beri, it is the opinion of physicians who had had much experience with the disease that the patient must be moved from the locality where the disease was contracted, must have absolute rest in bed, mild laxatives, diuretics, tonics and anodynes. When cardiac failure seemed imminent, strychnia and nitroglycerin give the best results. After the acute stage of the several forms of multiple neuritis has passed, the patients require vigorous restorative treatment.

The diet throughout must be carefully regulated to suit the digestive condition of the patient. As soon as the acute pain has disappeared, the use of the galvanic current of a proper amperage, interrupted so as to produce muscular contraction, is indicated. The séances should be short; not more than three or four contractions of each group of muscles by a current of the least possible amperage should be made daily. Gentle massage should be commenced at the same time and the severity of this treatment should be increased as muscular soreness subsided. This exercise of the atrophied muscles will ordinarily result in their slow development and after a time they will respond to the Faradic current, which should then be substituted. Much benefit may be had by the hypodermic use of strychnia daily, beginning with 1/60 and gradually increasing it to a full physiologic dose. If the case did not yield, hypodermic injections of the chlorid of gold and sodium, gr. 1/24, may be added to the daily treatment. As soon as possible the patient should be encouraged to make frequent voluntary muscular movements. Many cases of multiple neuritis in the beginning of treatment are discouraging and the physician is apt to consider them hopeless too soon. Some of the most satisfactory results that the writer had obtained were in cases of long-standing neuritis which had been abandoned by physicians as incurable.

Intemperance and Life Insurance.

DR. C. F. WAHRER, Fort Madison, Iowa, contributed a paper with this title. The author holds, despite many conflicting opinions on the use of alcohol, that two things are certain: all scientists agree that even its moderate use is not beneficial and may easily be harmful, and that all insurance companies regard drinkers as belonging to the class of hazardous risks. Drinkers easily fall victims to such diseases as nephritis, heart disease, pneumonia, typhoid fever and cirrhosis of the liver, and since intemperance is most frequently found among the lewd and vicious, they are particularly liable to gonorrhea and syphilis. Once attacked, their chances for recovery are greatly lessened by the life they have led. Men following hazardous occupations are liable to injuries and, if intemperate, they stand operations poorly and their chances for recovery are relatively small.

Since intemperance plays such an important rôle in life insurance, it is well to note the fact that the children of drinkers are poorer risks than those whose ancestors led pure and temperate lives. There are two kinds of risks, the standard, embracing those who pass a satisfactory examination and receive an unmodified policy at usual rates; and the substandard, who, on account of an unsatisfactory examination, are given a modified policy.

The author suggests the establishment of a new class, the super-standard class, in which, beside possessing the good qualifications of the standard risk, the applicant must be a teetotaler. He thinks it just that these should not pay for the shortcomings of others and that there is a sufficient number of them to justify the creation of a separate class to whom policies should be issued at reduced rates.

Treatment of Malignant Tumors by the X-Ray.

DR. WILLIAM ALLEN PUSEY, Chicago, read a paper on this subject, illustrated by stereopticon.

Medical Education.

This was the subject of the president's address by Dr. John C. Murphy, St. Louis, Mo. A man who aspires to teach others should himself have a thorough understanding of what he attempts to teach and should be chosen on account of his special knowledge of some particular subject, and not on account of his ability to buy stock in the college. It is only by concentration in some particular channel that one can hope to become a peer among his fellows and rise above mediocrity. The medical teacher should have a proper preliminary training. No man can hope to turn out a finished product unless he himself is finished. The professor of medicine is not preparing his pupil to become a mere artisan; he is fitting him for the noblest work of mankind; to alleviate human suffering, to be the mediator between life and death. He is God's architect, who gives him the solid ground of man's intellect, to erect thereon a monument that will endure for all time, for good or evil. Great responsibility rests upon the medical educator. If his work is well done, as he approaches the end of his

career and takes a retrospective glance down the vista of his life, he sees here and there young intellectual giants of his own creation, ready to continue the work he has so well begun, to perpetuate his name, and enjoy and transmit the heritage of his genius.

The medical student is the very center of the arch; the keystone of the structure, without which all must fall. This age abounds with many opportunities for the earnest worker along the various avenues of science, but there are none which offer greater opportunities for renown than the science of the saving of human life. Men should be famous for the good they do to others. There are more heroes in the medical profession than in all the armies of the world; men who every day risk their lives amidst scenes of pestilence and disease that others may live. The man who goes forth to wage war on disease is a greater hero than Alexander the Great or Julius Ceasar.

He would say to the prospective medical student: "Let him think well of what he is about to undertake; before he begins to dissect others, let him, metaphorically, dissect himself, and see if he possesses the moral and intellectual attributes necessary to success."

"The world of the microscope alone is only half explored, and holds many secrets for future generations to unfold. If there are to be other Virchows, other Senns, other Kellys and other Oslers to take their places when they are gone, it remains for the medical colleges of to-day to furnish the material out of which they are to be evolved. The whole future of medicine and surgery for centuries to come depends on the medical educators of to-day. The training of a doctor is like the training of an infant, it must begin with his ancestors, in order to be successful. The parent from whom he comes must be healthy in mind and body if the offspring will be likewise. The course of four years in college is to the student what the period of prenatal existence is to the infant, a time of development and preparation for an independent life. What does the term *alma mater* signify but loving mother? If we would have our children do us credit, we must have a care as to the kind of material we select for their making. We must not be like the fishermen who let down their drag-nets and gather in all that are caught in their meshes. Unfortunately, too many colleges pursue this method, and cast their nets in the form of enticing literature to tempt the smith from his forge and the husbandman from his plow, where nature intended them to remain. They come, they see, but they conquer not. Their cherished hopes are blasted; their desires unsatisfied; their time wasted. All they have to show for their endeavors is a worthless piece of parchment bestowing a worthless title. The great percentage of them must go back to the forge and the plow or starve." Dr. Murphy referred to a college commencement where 214 students were graduated with the degree of M.D. There had been no failures. He did not believe that such a number of men gathered in from the highways and byways could successfully pass an examination of any severity. What is the secret? It is the commercialism which has crept into the medical colleges. Graduates are turned out who have no ability themselves and they become mere drummers for the college professors. The more half-educated men graduated, the better it is for Professor Laparotomy and the other distinguished specialists. If the graduates were well educated gentlemen, it might work a hardship on the professors' bank accounts, but what a boon it would be to the eighty millions of unsuspecting public! When all medical colleges become departments in endowed universities and the professors are paid for their services, the sooner will commercialism be eliminated and we will soon have fewer colleges and better doctors. And the medical profession will not be long in again establishing itself upon the high pedestal of honor it once occupied. The march of disease will be stayed and as a people we will become as were the ancient Greeks, marvels of beauty and powers of moral, intellectual and physical strength; and we as physicians will have the welfare of a grand and glorious nation in our keeping.

Cataract Operation in the Very Old.

DR. A. B. HALE, Chicago, read a paper on this subject. He spoke of trying to overcome the prejudice among the laity against cataract operation in the very old. The eye is more amenable to surgical interference in these cases than other organs of the body. He reported six cases of operation in patients aged 80 to 100 years and makes the following conclusions: 1. Tissues in the old are apt to be friable and the cataract over-ripe. 2. Vision need not necessarily be impaired. 3. Patients stand the operation surprisingly well and with little reaction. 4. Every case of cataract in the very old, if the retina and nerve seem to functionate well, should be given the chance of operation. 5. Emergencies should be anticipated and met at once. 6. Repair proceeds slowly, but as securely as at an earlier age.

Splanchnoptosis.

DR. FRED BYRON ROBINSON, Chicago, made a few remarks on this subject, which were illustrated by charts.

Tetanilla.

DR. J. W. HANNA, Winfield, Iowa, detailed a case of tetanilla. This name was applied to a peculiar neurosis characterized principally by paroxysmal tonic convulsions of certain groups of muscles. The disease attacks by preference children and young adults, varying in age from fifteen to thirty.

The Hygiene of the Pregnant and Puerperal States.

DR. C. E. PADDOCK, Chicago, read this paper and emphasized these points: Pregnancy borders so closely upon a pathologic condition that a physician's advice is necessary. Careful examination of the urine must be made frequently, and at least once a month a twenty-four-hour specimen is to be had. The prophylactic treatment of eclampsia lies in strict attention to this, and also in the use of the daily bath. The physician who carries out a systematic treatment of his cases has fewer mortalities and fewer conditions of morbidity.

DR. FLORENCE PATRICK, Burlington, Iowa, followed with a paper in which she covered essentially the same ground as that outlined in the paper of Dr. Paddock.

Infections of the Puerperal State and Their Surgical Treatment.

DR. EMORY LANPHEAR, St. Louis, Mo., the author of this paper, said that the fatality from puerperal infection attended by midwives was appalling. The mortality arose from several things, first, non-familiarity with the various causes of puerperal infection; second, inappreciation of asepsis; third, gross carelessness; fourth, meddlesome interference with natural processes; fifth, the spread of venereal diseases.

The Pathologic Status of Retroverted Uteri.

DR. WILLIAM A. TICHENOR, Chicago, read a paper on this subject. The author thinks there are certain grave pathologic conditions found in the uterus and adnexæ in which the first step is backward displacement. Among the more grave is prolapsus. Practically, all cases of prolapsed uteri are first displaced backward, for it is practically impossible for a uterus to slide down the vaginal canal if the cervix is well back toward the sacrum and the fundus well up against the pubes. In this position the organ lies across the axis of the vaginal outlet, and will not prolapse; but when the fundus is in the hollow of the sacrum the organ is in the most favorable position for gravitating toward the vaginal outlet. The retroverted position militates against the expulsion of menstrual and other secretions. This position retards venous circulation, thereby favoring the growth of any pathogenic bacteria that may find lodgment. It lessens the woman's ability to bear children by decreasing the chances of conception and increasing the chances of abortion. He thought about one-third of all gravid uteri abort. The retrodisplaced uterus is a prominent etiologic factor in prolapsed ovaries. Retroverted uteri and prolapsed ovaries are in the most favorable position to be irritated and injured by the passage of hard feces, and during the act of coitus.

Officers for the Ensuing Year.

The following officers were elected: President, Dr. Alexander Hugh Ferguson, Chicago; First Vice-President, Dr Flavel B. Tiffany, Kansas City, Mo.; Second Vice-President, Dr. J. C. Sullivan, Cairo, Ill.; Secretary, Dr. W. B. La Force, Ottumwa, Iowa; Treasurer, Dr. Emory Lanphear, St. Louis, Mo. Place of meeting, Hannibal, Missouri.

Therapeutics.

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns without allusion to inquirer.]

Throat Affections.

Dr. R. Browning, in *New York Med. Jour.*, recommends the use of iodin in all forms of angina from whatever origin. He, however, does not use it in the form of the pure tincture, in which form it may be applied, but dilutes it with glycerin and water according to the following formula:

℞.	Tinct. iodi	℥ss	2 |
	Pot. iodidi	gr. viiss	|5
	Acidi carbol.	m. v	|3
	Glycerini	℥ii	8 |
	Aquæ q. s. ad	℥ii	60 |

M. Sig.: Apply locally with a swab.

The application of the foregoing should be preceded by an astringent spray of hydrogen dioxid. Care must be observed in applying the iodin solution in order that none of it drops into the larynx.

Specific Iritis.

The following combination is recommended by the *Med. Rev. of Reviews*, to be given internally in specific iritis:

℞.	Hydrarg. biniodidi	gr. vi	|35
	Potassii iodidi	℥iss	6 |
	Aq. destil. q. s. ad	℥iii	90 |

M. Sig.: One teaspoonful in water after each meal.

Neurasthenia.

Dr. Wharton Sinkler, of Philadelphia, in *Internat. Med. Mag.*, says: Arsenic, if it does not disturb the digestion, is of value and may be administered in the form of the solution of bromid of gold and arsenic. Phosphorus alone or in combination is indicated in small doses and many patients who suffer from great nervousness, restlessness and irritability are very much helped by the administration of asafetida and the valerianates. He regards the compound sumbul pill of great value. The formula for this pill, as recommended by Dr. William Goodell, is as follows:

℞.	Extracti sumbul	gr. i	|06
	Ferri sulph. (exsic.)	gr. i	|06
	Asafetidæ	gr. ii	|12
	Acidi arsenosi	gr. 1/40	|0015

M. Ft. pillula No. i. Sig.: One such pill three times a day, increasing to five or six a day.

He advises the use of sodium bromid in the depressed, restless and physically nervous cases. This may be given in liquid form, combined as follows:

℞.	Sodii bromidi	℥iiss	10 |
	Tinct. nucis vom.	℥iss	6 |
	Infusi gentianæ q. s. ad	℥ii	60 |

M. Sig.: One teaspoonful three times a day. He emphasizes the danger from keeping up the bromid for any length of time in these cases. Nevertheless, if given at intervals, great good may be accomplished by its use.

Vaginismus.

The general treatment of vaginismus, according to the *Med. News*, consists of avoidance of intercourse and in taking exercise and warm alkaline baths of soda and starch, using a bath speculum in the vagina. A stimulating diet should be avoided and bromids with valerian or valerianates administered. The local treatment may consist, first, of warm vaginal washes of mercuric bichlorid (1-5000), liquor plumbi subacetatis (1-240), or tincture of calendula (1-20); second, of suppositories containing one of the following ingredients: cocain gr. ii (.12), extract of belladonna gr. ii (.12), extract of hyoscyamus gr. v (.30); third, local applications of iodoform disguised with iodin or ichthyol. Medicated glycerin tampons or a vaginal dilator may be worn at night. Direct applications to the parts of solutions of carbolic acid may be made. If these means fail operative dilatation must be resorted to.

Inhalations in Tuberculosis.

Dr. J. E. Stubbert, in the *Post-Grad.*, recommends the following combinations for inhalation in addition to the general and systemic treatment:

℞.	Olei camphoræ	♏iiss	10 |
	Terebene		|
	Eucalyptol, āā	♏i	30 |

Sig.: Two to ten drops to be placed in an inhaler and used once or twice daily; or:

℞.	Menthol		|
	Camphoræ, āā	gr. xv	1 |
	Liq. alboleni q. s. ad	♏i	30 |

M. Sig.: To be used in the nebulizer once or twice daily; or:

℞.	Creosoti	♏i	4 |
	Liq. alboleni q. s. ad	♏i	30 |

M. Sig.: In the form of an inhalation. He states that for two or three hours after the use of either of these inhalations the breath gives the odor of the drug used, showing that the bronchial mucous membrane must have been tolerably well saturated.

Prostatic Congestion.

Stordeur, in *Progrès Med.*, recommends the following suppository in relieving prostatic congestion from any cause:

℞.	Pot. iodidi	gr. v	|30
	Ichthyol	gr. iii	|20
	Morphinæ hydrochlor.	gr. 1/6	|01
	Ext. daturæ	gr. 1/6	|01
	Ol. theobromæ, q. s.		|

M. Ft. suppository No. i. Sig.: One or two daily.

Disinfection of a Room.

The following method of disinfection of a room and its contents after scarlet fever or other of the infectious diseases is recommended by the *Cleveland Med. Gaz.*: 1. All cracks or openings in plaster or floor and about the door and windows should be closed by cotton or strips of cloth. 2. The linen, quilts, blankets, carpets, etc., should be stretched out upon a line in order to expose as much surface as possible to the action of the disinfectant. They should not be thrown into a heap. 3. The walls and floor of the room and the articles in it should be thoroughly sprayed with water. 4. For each 1000 cubic feet of space, 150 centimeters (five ounces) of formalin should be placed in the distilling apparatus and distilled as rapidly as possible. The keyhole and spaces about the door should then be packed with cotton or cloth. 5. The room should then remain closed for at least ten hours. If there is much leaking of gas into surrounding rooms a second or third injection of formaldehyd at intervals of two or three hours should be made.

Ecchymosis.

Periocular ecchymosis or what is termed "black eye" is best treated, according to Wood in *Med. Standard*, by the application of ice compresses if seen soon after the injury, or with an evaporating lotion composed of the following:

℞.	Liq. plumbi subacet.	♏i	4 |
	Alcoholis	♏i	4 |
	Aq. destil. q. s. ad	O i	480 |

M. Sig.: Apply locally to the affected parts.

Where a definite blood clot has formed within the palpebral tissues, the common practice of incising the skin and allowing the blood to escape or applying two or three leeches to the orbital margin is a good one. An antiseptic dressing should be subsequently applied. Unless treatment is resorted to within two days, no remedy will be of use.

Chronic Gastric Catarrh.

C. A. Ewald, as noted in *Medicine*, states, in the treatment of gastric catarrh, that two conditions are to be met: 1. A diminution of hydrochloric acid and pepsin; 2, lessened motility of the stomach. As a result of these two factors fermentation occurs, the character of which is determined by the kind of microorganisms present. The disturbance of the secretory function of the gastric mucous membrane is best met by the administration of as much acid as the patient can tolerate, administering it at intervals of ten minutes after meals. In some cases in which the stomach tube is well borne, a 0.2 per cent. solution of hydrochloric acid may be introduced directly into the stomach;

this amount corresponds with the normal quantity. Bitter tonics directly excite and increase the secretion and activity of the cells. The best tonic to produce such secretory effects is conduranga. And to increase the motility strychnia or nux vomica is the best. The latter is best given in the form of the tincture; massage and electricity are useful adjuncts. In treating fermentations the stomach should always be washed out. A weak antiseptic solution consisting of boric or salicylic acid in 2 per cent. strength should be employed. Fermentations may be inhibited by the following:

℞.	Resorcin (resublimed)	gr. viiss	5
	Bismuthi salicylatis	3iiss	10
	Natrii bicarbonatis	3iv	15
	Sacchari albi	3iv	15

M. Sig.: A small teaspoonful every two hours.

According to his statement no recovery is possible without a proper regulation of the diet. The patient should thoroughly masticate the food. White meats are more digestible than red meats. Fat meats should be entirely avoided. A limited amount of white meat may be taken, such as poultry, which is more digestible than the red meats. Eggs are sometimes agreeable to the patient's stomach. Milk is the best diet when agreeable to the patient. The starches should be converted into dextrin if possible. Vegetables are very well taken and digested, especially if cooked in salted water. However, vegetables such as cabbage, peas and beans are, as a rule, not well borne.

Medicolegal.

Neglect of Injured Employe While Being Taken Home.—The Supreme Court of Rhode Island holds, in the case of Bresnahan vs. the Lonsdale Company, that a cause of action was sufficiently stated in the allegation that the company undertook to convey a certain person to his home after his injury, and neglected to take the proper precautions to cover and protect him while so doing, in consequence of which exposure complications ensued, causing his death. If the taking home of the party after his injury was a duty assumed by the company, the fellow-servant doctrine contended for by it, probably to the effect that the negligence being that of fellow servants it would be a risk assumed by the injured employe and not something for which the employer would be responsible, the court holds did not apply.

Duty of City to Pay County Health Officer.—The Court of Appeals of Kentucky says that the object of the case of Blair vs. the City of Middlesboro was to recover $600 for services rendered by a physician as member of the County Board of Health, whose services as health officer were rendered in the city in the midst of a smallpox epidemic. The court says that it seems to it that sections 2059 and 2060 of the Kentucky statutes made it the duty of the city to procure and have rendered such services as the party suing rendered for it. It might, doubtless, by proper proceedings, have established a board of health, and placed such board of health or health officer in charge, and caused them to have rendered the service which was rendered in this case. But it appeared that no such steps were taken. On the contrary, the city, through its council, accepted and practically ratified the action and services and accepted the same at the hands of the party suing. Under which circumstances, the court is of the opinion that the city was legally bound therefor.

Aggravation of Injury by Not Observing Instructions.—The Supreme Court of Michigan says that there was testimony in the personal injury case of Zibbell vs. the City of Grand Rapids that the party suing, after receiving the injury, called a surgeon to treat her limb, and that he advised rest for the knee. There was also testimony that she did use her limb to some extent. The trial judge instructed the jury that the party was not entitled to recover any damages for any disability, suffering, or expense that resulted from her own failure to exercise proper and reasonable care after she received the injury of which she complained, which aggravated her condition, by failure to observe the instructions of her physician, and that the city was not to be held responsible for damages resulting from such neglect on her part. This instruction, the Supreme Court holds, correctly embodied the law. But it holds that it was error, when counsel attempted to argue this question to the jury, for the judge to stop him with the statement that he would charge that there was no act of the party which aggravated her condition. The testimony, it says, was for the jury, and, while it might not have been very convincing that she had been guilty of any imprudence, it should not have been wholly withdrawn from the consideration of the jury.

Wisconsin Law in Confusion—Use of Title of Doctor.—The Supreme Court of Wisconsin says, in the appealed case of Schaeffer vs. State, that the statutes in relation to persons practicing medicine and surgery in that state are in considerable confusion. Nor does it attempt to untangle them in this case. This was a prosecution under sections 1436 and 4603a of the Revised Statutes of Wisconsin of 1898. The first section mentioned provides, in substance, that no person practicing physic or surgery shall have the right to collect fees for his services or testify in a professional capacity in any case "unless he, before the 20th day of April, 1897, received a diploma from some incorporated medical society or college, or shall since said date have received a license from the state board of medical examiners." Section 4603a provides that any person prohibited by section 1436 from testifying in his professional capacity as a physician or surgeon, who shall assume the title of doctor under circumstances detailed therein, shall be punished by fine or imprisonment, and the burden of showing his right to use any such title shall be upon the accused. The complaint in this case charged that the party in question unlawfully used the title of doctor without having obtained a license from the state board of examiners. The Supreme Court holds that this did not describe an offense under the statutes. It says that the offense consists in assuming the title by one not having a diploma or license. The offense charged was that of having no license. Certainly this did not describe the offense prescribed in the statute.

Testimony by Patient—Physician Accompanying Another.—The Supreme Court of Wisconsin does not uphold the contention in the personal injury case of Green vs. the Town of Nebagamain that, because the party suing testified in her own behalf as to her condition while she was attended by a certain physician after her injury, she had thereby waived her right to exclude him from testifying on the same subject. It says that if such a rule were to prevail, it would destroy the privilege secured by the statute, or preclude the patient from testifying in her own behalf. There may be adjudications in other jurisdictions, under different or even similar statutes, holding otherwise, but, if so, this court declines to follow them. Then, too, there was in this instance a physician called from another place to treat this party for her injuries. On reaching the town where she was, he requested a physician there, who had been her physician but who had sold out his business with the view of moving away, to accompany him upon his proposed examination. This the latter did, and in his presence, that is, as the court says, in the presence of one who was thus called in as another physician, the physician who was summoned to treat the case made an examination, and prescribed for the party as her physician. The accompanying physician made no examination, and did not remain at the house after the other left. Now, it is very obvious, says the court, that had the physician called to treat the case been offered as a witness on the other side, his testimony as to what he learned upon the examination might have been properly excluded upon the same theory as that of the physician first mentioned in the case. It holds that the same was also true in respect to the proposed testimony of the accompanying physician just mentioned. It says that he had "been called in as another physician" by an attending physician. And it says that it must hold that he was, on account of this, an attending physician, and hence precluded from disclosing any information thus acquired, against the object of the patient.

Current Medical Literature.

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

New York Medical Journal, April 19.

1 *Cholelithiasis, Cholecystitis and Cholangitis. William H. Thomson.
2 Hematuria. William K. Otis.
3 *Some Reasons Against the Public Registration or Notification of Cases of Phthisis Pulmonalis. E. L. Shurly.
4 *Effects of Osteitis of Knee on Growth of Limb. Henry L. Taylor.
5 Gunshot Wounds on the Isthmus of Panama. Raymond Spear.

American Medicine (Philadelphia), April 19.

6 *Dry Points versus Glycerinated Virus, from a Bacteriologic Standpoint. M. J. Rosenau.
7 *Ocular Affections Associated with Glycosuria, with Especial Reference to Central Amblyopia. Walter L. Pyle.
8 Sinus Thrombosis Depending on Middle-Ear Disease, with Report of a Case Following Acute Sore Throat. George F. Cott.
9 *Tonsillar and Peritonsillar Suppuration. Henry J. Hartz.
10 A Fatal Case of Acute Primary Infectious Pharyngitis, with Extreme Leukopenia. Philip K. Brown.
11 *Hemostasis in Disarticulation of the Hip-Joint. John G. Sheldon.
12 Maxillary Antral Suppuration, with Report of a Case. Linn Emerson.

Medical News (N. Y.), April 19.

13 *Compulsory Vaccination Essential: The Example of Porto Rico. Azel Ames.
14 *Clinical Expression of Chronic Myocarditis. J. H. Musser.
15 *The Sanitary Condition of Street Cars in New York. George A. Soper.
16 *General Anesthesia in the Plethoric. M. L. Maduro.
17 *A New Method of Approximately Estimating the Number of Blood Corpuscles from Stained Specimens. Max Einhorn and George L. Laporte.

Philadelphia Medical Journal, April 19.

18 *The Haines Case and the Medicolegal Relations of Arsenic. Henry Leffmann.
19 *Perineal Prostatectomy. John B. Deaver.
20 *The Prevention of Neurasthenia After Surgical Operations. Charles W. Burr.
21 Four Cases of Estivo-autumnal Malarial Infection at West Point, N. Y. Thomas W. Jackson.
22 *The Bacteriology of Erysipelas. G. E. Pfahler.
23 Rational Therapeutics. Brace W. Loomis.
24 Twin Pregnancy in a Uterus Bipartitus. Charles W. Doughtie.
25 A Case of Moist Gangrene; Its Treatment. Lucien Lofton.

Medical Record (N. Y.), April 19.

26 *Instances of Spontaneous Cure in a Leper Family. Douglass W. Montgomery.
27 *A Contribution to the Study of Peritonsillar Abscess. Donald M. Barstow.
28 Mind and Body. J. Allen Gilbert.
29 *On the Penetration of the Human Body by Ordinary Actinic Light. William S. Gottheil and Milton W. Franklin.
30 Suprapubic Cystotomy. Donald Kennedy.
31 *Asepsis in Dental Surgery. William J. Lederer.
32 The Indications Calling for Operative Interference in Gallstones. Carl W. Strobell.
33 Death Following an Enema. Thomas H. Curtin.
34 Bile Burns in Anesthesia. Frederic Griffith.
35 A Case of Respiratory Tinnitus. Philip D. Kerrison.

Boston Medical and Surgical Journal, April 17.

36 *Papers on the Diagnosis of Appendicitis. Maurice H. Richardson.
37 *Vaginal Hysterectomy for Carcinoma of the Uterus. William R. Pryor.
38 Pathology and Pathologic Diagnosis of Carcinoma of the Uterus. T. Leary.
39 *Abdominal Hysterectomy for Uterine Cancer. J. C. Irish.
40 *The Surgical Aspects of Carcinoma Uteri, Complicating Pregnancy, Labor and the Puerperium. Charles G. Cumston.
41 *The Treatment of Cases of Carcinoma Uteri Not Justifiably Treated by Radical Operation. Albert H. Tuttle.

Cincinnati Lancet-Clinic, April 19.

42 *Phases of Progressive Medical Organization. Charles A. L. Reed.
43 *Ligation of Arteries (Cocain Anesthesia). B. Merrill Ricketts.

St. Louis Medical Review, April 12.

44 The Neuropathologic Aspects and Neurotherapy of Marasmus Infantilis. Charles H. Hughes.

Pediatrics (N. Y.), April 1.

45 *Middle-Ear Inflammations in Childhood and Their Relation to Deaf-Mutism. Gordon King.
46 *Enlargement of the Breasts in Acute Tuberculosis. W. F. Boggess.

Medical Fortnightly (St. Louis), April 10.

47 Relations and Treatment of Suppuration of the Middle-Ear. (To be continued.) A. E. Prince.
48 Birth-marks. Davis W. Reid.
49 *Some Observations on the Recognition and Treatment of Trachoma of the Female Tract. John A. Hale.

Northwestern Lancet (Minneapolis), April 15.

50 The Pelvic Floor and Its Injuries. William E. Ground.
51 The Time to Operate in Appendicitis. Christian Johnson.
52 Two Cases of Sarcoma, with Amputation of the Extremities. F. A. Dunsmoor.
53 Lead Deposits in the Cornea. H. A. Beaudoux.
54 Acute Yellow Atrophy of the Liver. Oscar A. Fliesburg.

Journal of Nervous and Mental Diseases (Nyack, N. Y.), April.

55 A Case of Metastatic Carcinoma of the Spine and Meninges. Albert C. Buckley.
56 A Case of Intracranial Disease Involving the Chiasm and Also Producing Profound Mental and Nervous Disturbances. B. C. Loveland and F. W. Marlow.
57 A Case of Multiple Lesions of the Spinal Cord and Cranial Nerves with Amyotrophy, Due Probably to Syphilitic Infection. Max H. Bochroch and Alfred Gordon.
58 Observations on Fifty-four Cases of Locomotor Ataxia, with Special Notes on Etiology. Dudley Fulton.

Albany Medical Annals, April.

59 *Tendon Transplantation in the Treatment of Paralytic Deformities. Arthur W. Elting.
60 An Unusual Case of Abscess of the Liver. Edgar A. Vander Veer.
61 Report of a Case of Embolism of the Popliteal Artery, Following Pneumonia. R. H. Irish.

The Post-Graduate (N. Y.), April.

62 *What Can We Diagnosticate in Acute Appendicitis. Willy Meyer.
63 The Induction of Labor. George L. Brodhead.
64 Lobular Pneumonia in Infants. Herman B. Sheffield.

New York State Journal of Medicine (N. Y.), April.

65 Smallpox and Its Treatment. S. Dana Hubbard.
66 *What Constitutes Efficient Vaccination? Frank S. Fielder.
67 *The Relation of Intestinal Toxemia to Arteriorenal Disease. Charles E. Quimby.
68 *The Therapeutic Value of Alcohol as Understood at the Beginning of the New Century. Frank W. Dennis.
69 *The Use and Abuse of the Obstetric Forceps. Edward A. Ayers.

American Medical Compend (Toledo, Ohio), April.

70 Dysmenorrhea in a Woman Suffering from Chronic Endometritus Complicated by Cystic Ovaries and a Myoma in the Anterior Uterine Wall. E. E. Montgomery.
71 Dysmenorrhea, Oviductus, Endosalpingitis, Myosalpingitis, Perisalpingitis. Byron Robinson.
72 The Medicinal Treatment of Some Common Gynecologic Conditions. Davis E. Bowman.
73 Functional Gastro-enteric Disturbances. W. W. Grube.

Bulletin of the Johns Hopkins Hospital (Baltimore), April.

74 *The Treatment of Vesico-Vaginal and Recto-Vaginal Fistulæ High Up in the Vagina. Howard A. Kelly.
75 *Cyclic Albuminuria. Wm. E. Huger.
76 On a Cyst Originating from the Ductus Thyroglossus. G. Canby Robinson.
77 Catarrhal Otitis Media (Non-Suppurative) as a Factor in the Etiology of Facial Paralysis. H. O. Reik.
78 A New Method of Teaching the Macroscopical Anatomy of the Central Nervous System. Arthur P. Herring.
79 Sorcery, Medicine and Surgery in Ancient Mexico. Zella Nuttall.
80 Preliminary Note. The Extent of Gastric Digestion in Cases of Carcinoma of the Stomach. Charles P. Emerson.

Medical Bulletin (Philadelphia), April.

81 Rosacea. John V. Shoemaker.
82 One Thousand Ophthalmic Operations. (Concluded.) L. Webster Fox.
83 Psilosis (Sprue) Among American Soldiers Serving in the Philippines. Frank T. Woodbury.

Archives of Otology (New Rochelle, N. Y.), February.

84 *Does Early Treatment of Acute Inflammation of the Middle-Ear Prevent the More Serious Complications. E. L. Meierhof.

Journal of Cutaneous and Genito-Urinary Diseases (N.Y.), April.

85 Cancer of the Skin. J. A. Fordyce.
86 Two Cases of Blastomycetic Dermatitis, One of Which Was Cured by Iodid of Potassium. Francis J. Shepherd.
87 A Case of Litholapaxy Under Cocain. G. K. Swinburne.

Southern Medical Journal (La Grange, N. C.), April.

88 Facial Paralysis. J. M. Aikin.
89 The Hemorrhagic Diathesis. D. D. Wood.
90 Facial Expression in Disease. W. W. Gilbert.
91 A Case of Nephrotomy, with Drainage for Tuberculosis of the Right Ureter—Secondary Nephrectomy—Apparent Cure. H. McC. Johnson.
92 A Case of Suppurative Tubercular Peritonitis. A. B. Anderson.

Georgia Journal of Medicine and Surgery (Savannah), March.

93 Diagnostic Acumen in the Skilled Practitioner. Edgar H. Nichols.
94 Doctors and Doctors. Ralph M. Thomson.
95 Fissure of the Anus in the Nursling. Edgar H. Nichols.

Medical Mirror (St. Louis), March.

96 Specific Medication. Andrew H. Smith.

New Yorker Medicinische Monatsschrift, March.

97 Zur Hygiene und zur Diagnose des Abdominaltyphus. Richard Stein.
98 Ein Beitrag zur Lehre von der Vererbung. Ad. Cohn.

Kansas City Medical Index-Lancet, April.

99 *On the Decadence of the American Race. John W. Kyger.
100 Prevention of Phthisis Pulmonalis. William A. Wood.
101 *Food Preservatives, Their Use, Misuse and Toxicology. J. Robert Moechel.

Hot Springs Medical Journal, March.

102 Typhoid Fever. William Cantrell.

Atlanta Journal-Record of Medicine, April.

103 Digitalis, Etc. C. A. F. Lindorme.
104 The Mosquito. Ennion G. Williams.
105 Further Observations on the Treatment of Summer Complaint. C. C. Cronkhite.
106 Some Remarks on Conservative Gynecology. E. C. Davis.
107 Medical Inspection of School Children. M. D. Hoge, Jr.
108 Iritis, Varieties of, Diagnosis, Differential Diagnosis, Causation, Treatment. F. Pierce Hoover.

Memphis Medical Monthly, April.

109 *Amebic Dysentery, with Report of a Case Complicated with Malaria. J. B. McElroy.
110 *Further Considerations in the Pathology of Malarial Methemoglobinuria. Wm. Krauss.
111 *The Continued Fevers of the Mississippi Delta. H. L. Sutherland.
112 *The Continued Fevers of the South. W. A. Evans.
113 The Treatment of Abortion. F. J. Runyon.

Mississippi Medical Record (Vicksburg), March.

114 Intestinal Indigestion. J. C. Ballard.
115 Liquid Thyroid. William Cheatham.

Texas Medical News (Austin), April.

116 Medical Organization. Walter Shropshire.
117 College-Bred Women: Their Relation to the Welfare of the Country. Ben H. Brodnax.
118 Abuse of the Curette. V. P. Armstrong.

Therapeutic Monthly (N. Y.), March.

119 The New Remedies of 1900 and 1901. V. Coblentz.
120 *Remarks on the Physiology and Therapeutic Application of Bicycle Riding. L. Zuntz.
121 *Changes of Substance in the Organism. J. W. Wainwright.
122 Recent Observations on New Methods of Treatment. Louis Van Hoesen.
123 Thuja Occidenalis. James M. Brown.

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1. **Cholelithiasis, Cholecystitis and Cholangitis.**—Thomson remarks that scarcely one out of twenty, or in his experience one out of thirty, of those who suffer from gallstones will ever need to undergo operation. The difference between renal calculus and gallstone is that the former is a stone and the latter is a soluble material which in many cases is disintegrated and carried away. Oils readily dissolve biliary calculi outside the body, and it is possible to believe that something analogous takes place within the body. There are only three ways in which the offending gallstone can be disposed of. The least common one is for the calculus to be discharged into the intestine. The second one is for it to float back into the gall-bladder and remain there, as 95 per cent. of the gallstones do. The third is that the bile itself in time dissolves the calculus into a detritus, which is finally expelled without notice. The last process he thinks is more common than generally supposed, and if so, one of the chief indications in the treatment is to increase as much as possible the flow of common bile. Gallstones do not come out of the liver, and are not formed of bile. The first indication in the treatment of cholelithiasis is to prevent bacterial invasion from the intestines: the commonest condition which favors this infection is chronic constipation. He thinks this is the reason many saline laxative waters have gained such reputation in the treatment. Weekly or bi-weekly mercurial purgatives taken at night are also of the greatest value for intestinal antisepsis and he never fails to employ them. We may safely rate sodium salicylate and sodium benzoate as true cholagogues. He gives these together in doses of 10 gr. each one hour after meals. In old persons with thickened arteries and weak hearts four or five grains of sodium iodid is a good addition to the sodium salicylate. Olive oil properly administered is the most efficient agent against gallstones, but the old idea of its action is wrong. The way it acts is to cause a watery flow from mucous membranes. Its action in cholelithiasis he conceives to be this: in the first place it is a food oil, and if taken in a small quantity, not over one or two ounces at a single dose, it excites an increased flow of normal secretions, viz., the biliary, the pancreatic and the secretions of Brunner's glands. Not more than an ounce or two is needed or required. In patients with cholelithiasis the dose is taken for ten consecutive nights, then intermitted for about a week to avoid gastric disturbance, and then resumed again for ten more nights. The result is not immediate relief, but a progressive amelioration of symptoms with the paroxysmal attacks becoming lighter and fewer until they cease permanently. The gastric conditions accompanying cholelithiasis require careful treatment. On general principles the patient should avoid what he finds difficult to digest. If the gastric digestion is in a fair condition rigid dieting is uncalled for. For subacute gastritis he has found 1/20 of a grain of bichromate of potassium and three grains of bismuth half an hour before meals, with five grains of resorcin in solution half an hour after meals, very serviceable. The chief dangers of cholelithiasis are a violent sepsis causing suppuration and ulceration. Some of these call for surgical interference. Among the danger signals he would put continued fever first; the marked irregularity of sepsis being conjoined with the continuousness of true sepsis. It is mainly from infective processes and not from gallstones *per se* that these perils supervene, hence the diagnostic value of fever. Febrile states, cholelithiasis accompanying, are of serious importance. In impacted gallstones the symptoms are usually definite enough. Cholecystitis is next mentioned; whatever its form, it is usually due to infection and in the chronic form the local tenderness is more persistent and not in such definite points as in cases of cholelithiasis. Acute cholecystitis may come on as suddenly as gallstone colic, with severe paroxysms, pain, vomiting, chills and high fever. The tenderness, however, is more diffused than in gallstones and commonly involves the epigastrium, which often projects like a tumor. The liver also becomes large and tender. Jaundice may be absent or insignificant. In mild cases the fever subsides early. Contrasting with these are the forms called fulminating cholecystitis. The patient rapidly shows signs of general poisoning and may become moribund within thirty or forty hours. Suppurative cholangitis is almost always an accident supervening on chronic cholangitis caused by retained gallstones. It is fortunately not a very common affection and not absolutely fatal, though such has been to some extent its reputation. Rare cases may recover.

3. **Notification of Phthisis.**—Shurly thinks that tuberculosis is not specially contagious or is only made communicable through neglect. He does not have much faith in house infection. He points out a number of objections to notification. In the first place, it can not be kept secret and would create embarrassment and often serious hardship to patients. If an erroneous diagnosis had been made, which is quite possible, great injustice would be done and it would cost the state an immense sum of money to support and pay damages to the sequestrated people. Our statistics are far from being accurate, but ordinarily phthisis pulmonalis is not as fatal as cancer, pneumonia or infantile diarrhea; not so prevalent as influenza or typhoid fever and not so dangerous to the public health as smallpox, scarlet fever, diphtheria and syphilis.

4. **Osteitis of the Knee.**—From the results of his studies Taylor concludes: 1. Gonitis in childhood usually causes lengthening of the affected limb when approximately straight; this may persist for eight years or more. 2. This lengthening is mainly due to overgrowth of the femur, and may often be detected within six months of the onset. In adolescents and adults, after cessation of active disease begun in childhood, the femur and limb may be considerably shortened. 3. The tibiæ are usually equal in length in the early stages; afterward the affected tibia may be slightly longer for a time, but is more often shorter, even in the first two years; this shortening increases in the older cases, and after subsidence of inflammation. 4. With limbs of equal length and duration of disease of several years, the femur of the affected side will be found longer, the tibia shorter than its mate. 5. The feet and patellæ show a difference in favor of the sound side after a year's duration and often before. 6. Stimulation of growth at the lower end of the affected femur and, more rarely and in less degree, at the upper end of the tibia is usually accompanied by retarded growth in other parts of the limb; growth in the femur itself is finally retarded, and the final result, after many years, may be considerable shortening of the femur, tibia and limb.

6. **Dry Points vs. Glycerinated Virus.**—Rosenau has investigated the bacteriology of dry points vs. glycerinated virus from various manufacturers to determine which is freest from impurities. He describes his methods of examination; the summary of his results is as follows: "Of 41 dry points examined

we found an average of 4807 bacteria per point. Of 51 glycerinated tubes and capsules we found an average of 2865 bacteria each. This is in excess of what a good glycerinated virus should contain. This difference in numbers does not justify the confidence placed in the glycerinated virus over the dry points as found upon the market, judging from the limited number of counts made. So far as the kinds of organisms are concerned, we found pus cocci in both the dry points and the glycerinated virus. We think we have demonstrated that some of the glycerinated virus on the market is "green"—that is, not kept a sufficient length of time before it is sold. From our studies we have concluded that we ought not to discredit glycerinized virus, for we consider the superiority of the virus amply demonstrated, but to condemn the practice of manufacturers who place an unripe product on the market. Much of the vaccine sold must have a high initial contamination to contain an average of 2865 bacteria per tube, and it is evident too great a reliance is placed upon the glycerin."

7. **Ocular Affections of Diabetes.**—The findings of Pyle's article are summed up by him as follows: 1. Diabetes mellitus or any other disturbance of carbohydrate metabolism may affect any portion of the visual apparatus. 2. The ocular changes may be produced by chemic or physical means, or indirectly through the associated general debility. 3. They may vary in intensity from slight failure of accommodation to a formidable hemorrhagic retinitis and total optic nerve atrophy. Minor visual disturbances are often aggravated by fatigue or increased cardiac action and may improve after rest or decrease of the vascular tension. 4. The intra-ocular disturbances may be exclusively unilateral and there is never seen ophthalmoscopically inflammation of the optic nerve—important differences from the changes in albuminuria, syphilis and other blood-dyscrasias. 5. Albuminuria does not infrequently co-exist with glycosuria and the retinal changes may present a mixed picture or a typical albuminuric retinitis may occur in diabetes. 6. Central amblyopia may exist in glycosuria entirely independent of the toxic influence of alcohol and tobacco, or in habitual users these may become a prominent factor in the causation. In these cases the initial lesion may be in the retinal ganglion cells; the inflammation of the "papillomacular fibers" of the temporal half of the optic nerve being secondary. 7. In chronic glycosuria, with the exception of cataract, ocular symptoms are often present when the constitutional and urinary symptoms are not marked. 8. The ocular symptoms may be the first to lead the patient to seek medical advice, therefore glycosuria should be suspected in the following conditions: (*a*) Premature presbyopia. (*b*) Unexplained mydriasis or cycloplegia. (*c*) Sudden change in the refraction; particularly, marked development or increase of myopia past middle age, without cataractous changes. (*d*) Intractable iritis. (*e*) Cataract in young or middle-aged persons. An examination of the urine is advisable even in cases of senile cataract, as the etiology has a bearing on the prognosis of operation. (*f*) Retinitis, particularly of the hemorrhagic variety. (*g*) Unexplained optic nerve atrophy. (*h*) Sudden and marked amblyopia, particularly central, without visible fundus changes. 9. The prognostic significance of ocular disturbance is not definitely established on account of the great difficulty in pathogenesis, severity and ultimate issue of the various forms of glycosuria. In well-marked cases many forms of eye lesions may improve and the patient's general health may be restored. The ocular symptoms do not progress according to any rules. Hemorrhagic retinitis and amaurosis preliminary to coma are the most serious symptoms. The ophthalmoscopic observation of greatest value in the prognosis is the state of the retinal vessels, as this may be taken as an index to the patient's general vascular condition.

9. **Suppurative Tonsillitis.**—After discussing the subject and describing the parts and condition, Hartz summarizes as follows: The obstruction of the orifice of the supratonsillar fossa and the orifices of the crypts of the tonsils predisposes to circumtonsillar suppuration directly, and any vulnerable part of the organism remotely. Early incision should be done at the point of origin, which is usually within the supratonsillar fossæ or within the crypts of the tonsils. Chronic latent tonsillar abscesses may initiate an infection developing pneumonia, pleurisy, pyemia or septicemia. The coccus variety of germs may be temporarily encapsuled within a wall of connective tissue. Articular rheumatism, consecutive to tonsillitis, is a suppurative process produced by invasion of cocci through lymph or blood channels. Uricacidemia does not cause suppuration, but may predispose to it.

11. **Hemostasis of the Hip-Joint Disarticulation.**—The method described by Sheldon is offered by him as a modification of Senn's, consisting in a primary disarticulation of the head of the femur, followed by the introduction of an artery forceps into the wound behind the femur and cramping the femoral vessels. The several steps are given as: 1, disarticulation of the femur; 2, freeing the upper part of the femur from its muscular and ligamentous attachments; 3, clamping the femoral vessels; 4, formation of the flaps and removal of the limb; 5, ligation of vessels and closing of the wound. The operation is described in detail. The advantages he claims for it are that it is more rapid than any other method, any size or shaped flaps desired can be cut, no constrictor is present to obstruct the field of operation and only the simplest instruments are required.

13. **Vaccination in Porto Rico.**—Ames describes the methods in Porto Rico and the practicability and advisability of compulsory vaccination. In October, 1898, smallpox was endemic, in December it was epidemic, in January, 1899, it had honeycombed the island; in February there were 3000 cases and the disease was spreading. Systematic compulsory vaccination was begun in February and carried on for four months until July 1, when 860,000 vaccinations had been made in a population of 960,000, with 87.5 per cent. of successes. The disease then had practically disappeared. In the two and a half years that have since passed the former average death rate of 621 per annum has been reduced to 2 in a population of over 1,000,000.

14. **Myocarditis.**—Musser relates the symptoms of chronic myocarditis, narrates cases and says that there may be no symptoms in the advanced stage of the disease. It may make its appearance during the course of an infection. The clinical expression also may be effaced or obscured by the phenomena of primary valvulitis, nephritis, an emphysema, or an arteriosclerosis. The clinical expression may also be a symptom of senility. The cardiac symptoms he discusses are heart tire, by local anemia, digestive disturbances, renal insufficiency, breathlessness, edema of the feet, syncopal attacks or anginal weakness, tachycardia, small and feeble pulse, etc. The symptoms of cardiac dilatation also soon appear as well as angina pectoris, which may occur only once with fatal results. The patient who has had one attack of angina pectoris is almost invariably doomed. He would say that eight to twelve months was the average duration of life after the first attack.

15. **The Sanitary Condition of Street Cars in New York.**—Soper notes the dangers of street cars, their overcrowded condition, proof of inefficiency of ventilation, the bacterial condition of the air of the cars, the condition in tunnels and subways, in which not only tuberculosis, but other infections, such as measles, scarlet fever and diphtheria, are liable to be conveyed. The principal objects, toward which efforts to improve the sanitary condition of street cars should be directed, are the reduction of overcrowding, prevention of spitting and the proper ventilation of cars.

16. **Anesthesia in the Plethoric.**—Maduro states that the object of his paper is to prove that there are dangers connected with the administration of anesthetics in the plethoric which can usually be overcome by care. The combination of anesthetics, nitrous oxid first and ether following, or chloroform finally if necessary, is suggested. Pharyngeal stertor is sometimes observed and while alarming is usually overcome by pulling the jaw forward and should give no concern. Where the heart's action becomes enfeebled from hemorrhage or vomiting we should look for proper drainage of the mouth and be sure

of deep narcosis before the beginning of the operation. Fear on the part of the patient is usually an element to be considered, and many plethoric individuals think they will not be able to stand the anesthetic on account of difficulty in breathing; thus the natural difficulty is exaggerated by fear. The patient should be assured that deep and regular breathing ensures good results. The narcotic to be used should abolish consciousness quickly and should be followed up by one that is the best cardiac stimulant, like ether.

17. **Counting Blood Corpuscles.**—The various difficulties in counting the blood corpuscles and estimating their number from stained specimens are noticed by Einhorn and Laporte, who give their own methods. In obtaining the blood it should flow our naturally, should not be pressed out and should be evenly stained. Preparations made by spreading the blood on a slide by means of a spreader or by allowing the blood to spread out by force of capillarity between two cover-glasses are not suited to the purpose on account of the uneven distribution of the corpuscles. All their specimens were stained for two minutes by means of the Jenner stain, which is a universal one, bringing out all the various forms. They have found the medium dry objective (DD or E of Zeiss or 5, 6, or 7 of Leitz) with a weaker and stronger eyepiece most practicable. The method of giving the count is as follows: "After preparing the cover-glass specimen and selecting a suitable area, as described above, we count with objective DD and eyepiece 2 all leucocytes visible in the field. After changing eyepiece 2 for eyepiece 4, into which we have placed our blood-counting diaphragm, all the erythrocytes visible in the entire square aperture or some part of it are counted, without having moved the specimen. Now we reinsert eyepiece 2 and move the slide for the width of one field. This procedure is repeated until about six square millimeters (25 fields) have been counted. From these figures the number of leucocytes and erythrocytes in one square millimeter of the cover-glass specimen is calculated. The number of leucocytes in one square millimeter is found by simply dividing their total number counted by the number of square millimeters counted. With the red we proceed in the same manner except that we have to multiply the resulting quotient by the number which indicates how many times the field of eyepiece 2 is larger than that of the field embraced by the square aperture of the blood-counting diaphragm in eyepiece 4. In our case this number was 20.3. All we have to do now in order to obtain the number of corpuscles in a cubic millimeter is to multiply the numbers counted in one square millimeter by the average factors (500 for the red and 400 for the white cells). Lately we have modified the blood-counting diaphragm by substituting a glass disk for the metal part, leaving the arrangement for the square (3 mm.) as before described, the square being formed by lines cut in the glass disk. In this way the blood-counting diaphragm enables us to count the white and the red cells without change of eyepiece."

18. **Medicolegal Relations of Arsenic.**—This special article by Leffmann discusses a recent murder case in New Jersey in which, according to reports, the first trial ended in the conviction of the prisoner and in the second acquittal was obtained on the basis of the possibility of the introduction into the body after death of arsenic, zinc, etc. He thinks we should take more notice of the modern custom of undertakers and regulate the use of arsenical fluids—at least enough to prevent embarrassing medicolegal inquiry. He says that to prove death by arsenic some pathologic condition characteristic of its action must be shown. It can not be now assumed that 2 gr. of arsenous oxid will cause death in an adult, nor that the mere finding of arsenic in the abdominal viscera proves that the poison was introduced before death.

19. **Perineal Prostatectomy.**—After an elaborate description of the anatomy of the prostate and its relation to the genito-urinary organs, Deaver reviews the methods for the relief of its hypertrophy, first comparing methods of castration. Vasectomy and castration are practically becoming obsolete, though they are still worth trying in cases seen too late and where a more radical procedure would be unjustifiable. Suprapubic prostatectomy has its disadvantages in requiring work to be done through the bladder wall, in many cases blindly, where thick abdominal walls and contracted bladder exist. In certain cases, however, it may be indicated. Bottini's operation is also conducted in the dark and its statistics do not show it to be an unusually valuable one. He declares perineal prostatectomy to be based on sound principles, sound anatomically because the posterior portion of the prostatic urethra is removed, thus allowing easy access to the new growths. The base of the bladder and the internal sphincter are not damaged, and free drainage is secured; the capsule of the gland, to which the supports of the bladder are in a great measure attached, is left, and, what is most important, the entire seat of the trouble and all new growths are certainly and radically removed. Septic cystitis, unless pre-existing, is not likely to follow because the bladder is not injured. Even the danger of the sudden relief of a distended bladder may be obviated if we are careful not to encroach upon the internal sphincter. The operation is an extensive surgical procedure, and is described in detail. It necessarily destroys the procreative powers of the individual—a fact which must be considered before operation is attempted—but on the whole he thinks the method more suitable to earlier cases than those in which periprostatitis has made operation difficult and prolonged sepsis from cystitis and pyelitis has rendered the patient unfit for any major surgical procedure.

20. **Post-Operative Neurasthenia.**—The subject is thought by Burr to be of sufficient importance to be considered by surgeons, and he calls attention to some special points. He thinks that shock and disease are both responsible for it, but the really important question is the propriety or necessity of preliminary treatment of a woman suffering from chronic, especially pelvic disease, more or less serious but not immediately disastrous to life, in order to shorten the convalescence and hasten recovery. Many of these cases produce neurasthenic symptoms which are increased by hasty operations without preparation of the patient. The removal of the organic disease does not immediately make the patient well. It is often better to put the patient through a course of general treatment and operate later. He therefore advises the use of the rest cure, with close medical supervision for every indication that may appear, for some weeks before operation, regulation of the nature and amount of the diet, exercise by proper massage and Faradism. In this way the shock of the operation will be lost and recovery secured. Sometimes operation may be avoided entirely.

22. **The Bacteriology of Erysipelas.**—Pfahler describes the diplococcus on which he published an article in the *Philadelphia Medical Journal* of Jan. 13, 1900, and which he has since further investigated, making a series of 98 cases altogether. In a number of these, aseptic applications had been previously made which had probably affected a number of foreign organisms on the surface of the skin, but the diplococci were found in 86 of the 98 and in pure culture in 66. The cocci were spherical, usually occurring in pairs, often singly, rarely in fours. They stained readily by anilin, gentian-violet, carbol-fuchsin and by Gram's method, but did not stain well with Loeffler's alkaline solution of methylene blue and still less with a saturated aqueous solution or with Gabbett's solution. The microbe grows in the presence of oxygen and at room temperature, but better at 31 C. It is non-motile. Cultures in bouillon show a cloudiness at the end of twelve hours, which increases from day to day, but which tends to clear after several weeks, leaving a sediment. It also forms minute opaque colonies in glycerin-agar at the end of twenty-four hours and a more luxuriant growth on blood serum. Gelatin is not liquefied and there is no evidence of gas production. The inoculation experiments produced, as a rule, a perfect area of erysipelatous inflammation. In only one case did inoculation fail in rabbits. In guinea-pigs and white rats it seems ineffective. He claims that Koch's postulates have been demonstrated with reference to this organism as follows: 1. It was found in the diseased tissues of 86 different cases of erysipelas. 2. It was grown upon artificial media in each case. 3. The disease was produced in 24 rabbits by subcutaneous inoculations. 4. The

same organism was obtained from the diseased tissues of the inoculated animals.

26. **Leprosy.**—Montgomery reports an interesting history through three generations. The parents were missionaries in the Sandwich Islands. The father's death was possibly from blood poisoning and his family was markedly neurotic, one sister, it is said, having become permanently insane. There was no history of disease in the missionary's wife or in her family. Of eight children five were females, four of them healthy: one a maculo-anesthetic leper who recovered. Of the three males, one died in youth, another died at six months from perforating ulcer of the wrist, the third had maculo-anesthetic and possibly tuberculous leprosy with recovery. The one female leper bore five healthy children. Three of these were lepers and recovered. Another healthy member of the family had five children, one of them a leper. The one male leper had two sickly children that died in infancy, two healthy children and one healthy grandchild. The cases are given in detail. The recovery seemed to have been sufficiently marked to warrant the designation. The author does not believe in the heredity of the disease in these cases; there were evidences enough of possible contagion.

27. **Peritonsillar Abscess.**—Barstow wishes to draw attention to the treatment used by him in 10 of his cases during the past two years which has thus far given good results. Two of the patients have had complete immunity from the attacks for two years, one for one year, two for six months and one case failed. Five have been lost sight of. The object of the treatment is, briefly, to open up the supratonsillar recess so widely that it will drain itself freely, repair its diseased mucous membrane and cease to be a catch-all for germs and débris. This result is accomplished as follows: A 4 per cent. solution of cocain is injected from a hypodermic syringe into the body of the tonsil and into the peritonsillar region, through several points in the anterior pillar. This gives a degree of anesthesia quite sufficient for the operation. Then, with a bistoury, a curved incision is made from above downward, dividing the plica triangularis at its base from the anterior pillar. Next, with a Myles tonsil punch, the entire upper part of the tonsil is removed piecemeal, together with a part or the whole of the plica triangularis. If the instrument be sharp and in good order, the operation is entirely painless. A dull instrument, however, pulls like a dull pair of barber's scissors and this is exquisitely painful. The earlier part of the operation is quite easy. Toward the end, however, it becomes necessary to burrow quite deeply between the pillars, and there is danger, on the one hand, of failure to accomplish the desired end; on the other hand, of wounding one of the pillars and causing hemorrhage. If, however, the tongue be smartly depressed, the patient, in gagging, turns the stump of the tonsil forward toward the operator, and the operation can be finished, step by step, under his eye. When neatly and carefully done, the operation is quite painless and the resulting sore throat very trifling. It is not always possible to avoid wounding the pillars of the fauces, and when this happens there is always soreness and there may be hemorrhage. Dr. R. C. Myles has shown that hemorrhage after tonsillectomy is very rare, except when the pillars are wounded, for the tonsillar arteries are small terminal twigs and there is no vessel which passes through the tonsil to supply other structures. Only very rarely, and with an unusually restless patient, it is necessary to divide the operation into two sittings. The usual time consumed is less than fifteen minutes, and most patients bear the strain without much trouble. Should it, however, be necessary to remove both tonsils, it is better not to attempt both on the same day.

29. **Penetration of the Body by Actinic Light.**—Gottheil and Franklin have experimented with the effects of ordinary actinic light by the violet end of the spectrum and offer the following conclusions: 1. Light, in proper concentration from a source of sufficient actinic power, can be made to penetrate the entire thickness of the human body, including both surfaces of the skin; hence all the internal organs are accessible to its influence. 2. Since no portion of the interior of the body, however, can be more than half the thickness of the frame from a cutaneous surface, and much of it is much closer, the time required for efficient actinic penetration to any depth is only a fraction of that employed in the experiments; conversely, if the time employed is equal, the chemotaxic effect will be far greater. 3. The proof of the penetration of actinic light to and through the internal organs apparently opens a field for its successful employment as a therapeutic agent in internal maladies, in view of its admitted efficacy in a number of external affections.

31. **Asepsis in Dentistry.**—Incited by the remark of a New York surgeon that no New York dentists paid any attention to asepsis, Lederer gives his methods in dental practice and thinks the speaker will not feel justified in repeating his remark. The hands, he says, are cleansed with hot water and green soap. If a patient turns up who is suspected of specific infection, he makes it a practice to use finger cots, sterilized before and after using. Forceps and all larger instruments are sterilized by boiling in formaldehyd solution before and after use. Hypodermic needle, nerve broaches and engine drills are passed through alcohol and burned off, then, before being introduced, are dipped in carbolic acid, full strength. For syphilitics, a separate set of instruments is employed. He describes the details, to illustrate his method of aseptic dentistry, in four cases, one of extraction, one of caries, one of pyorrhea alveolaris and a case of alveolar abscess.

36. **Appendicitis.**—Richardson's article is devoted to the diagnosis between appendicitis and thoracic conditions, and says that it is possible to make glaring errors. In all right-sided conditions of the thorax the symptoms may be so atypical that unless the surgeon makes thoracic examinations an invariable rule, he may be liable to explore the appendix in cases of pleurisy or pneumonia. He illustrates this by cases. The possible quick infection of the pleura from an appendicular lesion must also always be considered. The real cases of appendicitis or general peritonitis as compared with those of atypical typhoid or pneumonia or some other simulating condition are about 100 to 1. If, in cases of doubt, the rule is to operate, more lives will be saved than if the rule is not to operate. The diagnosis between acute thoracic and acute abdominal disease is always easy when the characteristic signs of either are apparent. The chief difficulty in making a decision is to recognize that the necessity for that distinction exists, as the thoracic symptoms are always masked by the more conspicuous and distressing abdominal ones. When once the attention is drawn to the possibility of a thoracic cause the diagnosis is easy.

37. **Carcinoma of the Uterus.**—Pryor notes the essentials of the operation for uterine carcinoma, first, parametrium and upper third of the vagina being removed in all cases of cancer of the cervix and in case of cancer of the body the parametrium only. There are two great dangers facing the surgeon, he either keeps too close to the cancer in avoiding a wound of the ureter, and is therefore not thorough, or in trying to be thorough he risks wounding the ureter in his attempts to keep away from the cancer. He believes in the majority of cases of young women or those under 50 years of age the abdominal operation is greatly to be preferred. He has lost but one woman under that age from preventive ligation and abdominal ablation. In no case has there been recurrence in one year. In the aged, with degenerate vessels and a tendency to less active progress of the disease, operation can be made through the vagina. In case of cancer of the body of the uterus the statistics from vaginal hysterectomy are sufficiently good, but he thinks it is a question whether it is not advisable in younger women to approach cancer of the corpus through the abdomen as in these recurrence is apt to be most rapid. The second requisite in operation—met equally well by both operations—is that no injury should be inflicted on the involved field during its removal; in abdominal operations the adjacent absorbents are cut off before any force is applied to the organs to be removed, hence there is less danger of pressure of the cancer elements into them. Extraneous circumstances having been considered, he describes the technic of the vaginal operation for

cancer of the corpus and find there is a distinct indication for vaginal hysterectomy in cancer of the cervix, but in a limited percentage of cases. It is, however, the operation of choice in cancer of the body of the uterus in nearly all cases, excepting young women with pus foci and those with cancer associated with fibroids.

39. **Abdominal Hysterectomy for Uterine Cancer.**—Irish believes that vaginal hysterectomy should be discarded in cancer of the cervix and that abdominal hysterectomy is the only resource left, that abdominal hysterectomy fulfills all operative requirements and whatever advance is made in treatment must be outside of the matter of operation. The only improvement we can hope for in the operative way is in wider dissection of pelvic lymphatics and glands than many surgeons now make.

40. **Carcinoma Uteri Complicating Pregnancy and the Puerperium.**—Cumston sums up as follows: If the carcinoma can be radically removed, the life of the mother alone is to be considered. Up to the beginning of the sixth month of pregnancy vaginal hysterectomy is the operation of choice, but after this period is passed, abdominal hysterectomy or Duhrssen's vaginal Cesarean section, followed by hysterectomy, are indicated. When the neoplasm is inoperable, the life of the child must be considered, but if the progress of the growth is such that the mother rapidly becomes cachetic, thus compromising the fetal vitality, pregnancy should be interrupted. Palliative treatment only should be instituted, because partial operations on the neoplasm usually produce miscarriage and the mother is not materially benefited by them. Cesarean section at term may be done, but when the uterus is left there is danger of septicemia, consequently Porro's operation is the one of choice if the peri-uterine tissues are not infiltrated to such an extent as to render this procedure dangerous.

41. **Treatment of Unremovable Carcinoma Uteri.**—All we can hope for in cases of unremovable uterine cancer is to keep down cauliflower growths and painful granulations by surgical and local treatment, purify the secretions, prevent auto-infection, allay irritation and as far as possible keep a clean granulated condition of the ulcerative surface. Curetting the urethra with sharp instruments is advised if the patient's strength admits. Hemorrhage is an early as well as a late manifestation, and is, as a rule, treated with the curette and cautery. The bladder complications are distressing and treatment is really of little avail. Under the circumstances one can do little more than keep the patient half-way dry, grease the parts and skin exposed to irritation with a soothing ointment and administer opiates. The bowels should be kept open by salines. Stricture of the bowel with complete occlusion, though frequent in cancer originating in the bowel, is very rarely a complication of uterine cancer. For marked infiltration into the vaginal tissues, when they are fissured and extremely sensitive, hot fomentations and mild unguents are suggested.

42. **Progressive Medical Organization.**—Reed's address congratulates the Physicians' Club of Dayton on the overcoming of prejudice and the general union of honorable and desirable physicians.

43. **Ligation of Arteries.**—Ricketts pleads for the value of cocain anesthesia in the ligation of arteries and in minor operations of this sort, giving special points in detail of the injections into the nerves supplying different parts.

45. **Middle-Ear Disease in Deaf-Mutism.**—King's article is largely a plea for early attention to oral disease in children and to preserving the power of speech in case the hearing is lost.

46. **Tubercular Enlargement of the Breast.**—Boggess calls attention to enlargement of the breasts during tuberculosis. He says it is not uncommon and is possibly more frequent in males than in females. It is correctly stated in the older books that this condition occurs more frequently on the side of the affected lung. The case he reports was in a little girl in whom there was an appearance of inflammation and threatening suppuration, which, however, did not occur.

49. **Trachoma of the Female Genital Tract.**—Hale believes that certain conditions of the female genital tract are entirely analogous to if not identical with trachoma. He says, "with the pathognomonic indications of a thin, watery discharge, no history of specific infection, the peculiar rice-grain surface of the mucosa from enlarged papillæ and bleeding fissures, the persistent vaginismus, the increasing constitutional nervousness from peripheral nerve involvement in the new tissue formation of denuded surfaces, and in well-developed cases of cicatricial formation, oftentimes demanding surgical interference, is it not well to suspect that we have the same condition as is frequently met in conjunctival trachoma and to at least so diagnose this condition until the microscopists throw more light on this affection as well as on that of the ocular mucosa." He has found this state of affairs existing at all ages and remarks that the urethral mucous membrane also is frequently involved because of its proximity. The treatment he advises is thorough cleansing with warm water slightly impregnated with hops, wiping dry with a pledget of aseptic cotton, followed by liberal and oft-repeated applications of hydrogen peroxid rubbed well into the tissues and wiped thoroughly dry. Following this he uses protargol which he finds the most efficient remedy in the proportion of protargol 10 parts, glycerin 40 parts and water 50 parts, applied on a pledget of aseptic cotton. Two cases are reported.

59. **Tendon Transplantation.**—After noticing the literature of tendon transplantation, Elting mentions the various methods by which this is performed: 1. The severed tendon of a healthy muscle is attached to a paralyzed muscle. This has the objection that it sacrifices the normal function of the transplanted tendon. 2. The tendon of the paralyzed muscle is divided and its peripheral portion is attached to the tendon of a healthy muscle. 3. The tendon of a healthy muscle is split and a part is transplanted upon that of the paralyzed muscle. This is the most logical, and when possible, the most satisfactory method. 4. This method consists in attaching the transplanted tendon directly into the periosteum. The advantages claimed are: 1, a more secure attachment of the tendon is obtained where a healthy tendon is sutured to one that is paralyzed and, 2, the greater freedom is allowed in the attachment of the transplanted tendons. The usual method of suturing is that of the Goldthwait, in which the paralyzed tendon is split and the transplanted tendon, having been scored along its edges to promote rapidity of union, is passed through the paralyzed tendon and fastened to it by quilted sutures. Catgut, kangaroo tendon and silk are used as suture material, but silk seems to be the most satisfactory. The lengthening of the tendons is a more desirable procedure than tenotomy, because the continuity of the tendon is not destroyed. In most cases the results are gratifying. A weak muscle can not be made to do normal work, but when it works advantageously it tends to grow stronger and more efficient. In the great majority of cases voluntary control of the new function of the transplanted muscles develops. The cortical cells connected with the muscle divide their activity in such a way as to produce normal control. Where this is lacking, the transplanted tendons tend to hold the foot in a normal position by their mechanical action and the involuntary contractions will furnish the necessary stability. A number of cases are reported.

62.—This article has appeared elsewhere. See THE JOURNAL for April 26, ¶13, p. 1108.

66. **Vaccination.**—Fielder, from his studies of the statistics and authorities, concludes that multiple vaccination is a much better protection than that afforded by a single vaccination scar. He holds that after five years or more the protection is lost and that therefore revaccination should be as symmetrically and as conscientiously performed as primary vaccination.

67. **Arteriorenal Disease.**—The principal point of Quimby's article is the effect of toxemia, largely intestinal, on the renal circulation, producing kidney disease; he holds that the persistent disturbance of the normal ratio between solids and fluids in the urine, whether constant or variable, is the earliest symptom of toxemia, and indicates conditions which, if continued

re certain to develop more or less rapidly cardiorenal disease. The propositions are given as follows: 1. That intestinal toxemia is one of the most common but least appreciated causes of arteriorenal disease. 2. That its more common occurrence in patients of abstemious habits and correct lives, together with the established custom of attributing all chronic renal disease to gout or alcohol, and all arterial fibrosis to high tension or syphilis, have caused us to overlook the symptoms of primary toxemia and to regard the renal and arterial degeneration as primary processes instead of the final stage in a general disease.

68. **Alcohol.**—Dennis' article is a strong exposition of the evils of alcohol, of which he has very little good to say in any way.

69. **Obstetric Forceps.**—The summary of Ayers' article is given as follows: "Use the 'classic' blades whenever they will accomplish delivery without fetal injury. Select the time of application nearest the obstetric moment—completion of cervical dilatation and head molding—permissible by the character of the patient's expulsive powers. Apply the blades to compel anterior rotation of the occiput. In tractions make the first aim delivery of the head through the cervix, rather than its descent into the pelvic brim. Remember that tractions are similar to convulsions in their effect on the fetus, which, prolonged, provoke asphyxiation. Keep the shafts off the perineum during the tractions high up. Remove and reapply the blades at studied intervals in prolonged and difficult cases. Extend the limbs when the head reaches the vulva. Remove the blades when the hands control the head. Keep constant watch of the fetal pulse."

74. **Vesico- and Recto-Vaginal Fistulae.**—The method suggested by Kelly consists in putting the patient in a properly-supported knee-chest position, thorough cleansing of the vagina, opening the vault in the line of the transverse scar through and into the peritoneum, by making a small incision in the attenuated septum. As this is done the air rushes in and the viscera drop towards the diaphragm. This little opening is then extended as widely as possible from side to side, destroying the vaginal vault and setting the bladder free. Next a large gauze pad with a stout thread attached is thrust down into the peritoneum and by pulling on this the bladder is crowded toward the vaginal outlet while the peritoneal cavity above is protected. It is important to wipe out the cavity of the bladder from time to time in order to avoid the escape of any of its contents onto the peritoneum. The margins of the fistula are now split, separating the vagina from the bladder, or if preferred, the fistula is denuded on all sides. An ordinary scalpel or a bistoury can not be used for this; a short-bladed thick knife, set at an angle to the handle and sharpened on both edges, which is illustrated in the paper, is used by Kelly. When the edges are split and the bladder wall set free, the bladder is sewed up separately by means of a row of buried sutures of fine silk or of catgut, uniting the muscularis alone, turning the vesical edges into the cavity of the bladder. The vaginal section is then united with a row of fine silkworm-gut sutures which may be continued up into the peritoneal surface of the bladder, easily and securely covering that part of the fistula which under previous methods was less likely to heal. There must be no dead space left between this and the buried row of sutures. The silkworm sutures are cut off at about 4 cm. from the knot. The fistula being now closed the pack is withdrawn. In order to get rid of the air in the peritoneum, the cavity is filled through a tube with normal saline solution, which, as it rises, displaces the air. When the patient is turned in the dorsal position all the water escapes. A little suturing at each angle and a drain of washed-out iodoform gauze in the middle completes the operation and the dressing. It is best to keep a catheter in the urethra from 7 to 9 days following the operation. Kelly says he has closed several fistulæ of this group by opening the peritoneum, but has not as yet made the wide lateral dissection proposed here. The same principle can be applied still better to recto-vaginal fistulæ situated high up in the vagina. In this case the absence of the uterus is not needed to facilitate the exposure of the fistula, as it is only necessary to open the peritoneal cul-de-sac behind the cervix widely from side to side and along the side of the rectum to gain the great advantage of increased mobility of the bowel, including an area above the fistula which can also be turned in by sutures so as to cover in the upper angle of the opening. He prefers in these cases to sew up the bowel separately with fine silk sutures in one or two layers and then he does not attempt to close the vaginal wound over the bowel, but puts a little iodoform gauze drain between the edges and allows the wound to close by granulation. An opening should be left in the peritoneum wide enough to admit a small iodoform gauze drain.

75. **Cyclic Albuminuria.**—Huger's conclusions are as follows: "The cyclic albuminuria, like the recognized pathologic albuminuria, is due to one or perhaps all of three causes: 1, inflammatory and degenerative changes in renal structure, as evidenced by the findings of casts (there is every reason to think that, by careful searching, casts will be found far more often than previous reports lead us to believe); 2, alterations in the quality of the blood which render its serum-albumin more diffusible (there is nothing to prove an inferior diffusibility in these cases, but the patients are almost always anemic); 3, alterations in the degree of blood-pressure, here due to a mechanically-increased pressure on the renal veins. Having learned that occasionally these cyclic cases pass into Bright's disease, but that by far the majority have gotten well and that many have been followed for years and then lost sight of still in the same condition, it must be admitted that Moxon and Arnozan were right in dividing them into two groups: 1, those few which develop a continuous albuminuria, and, 2, the vast majority which get well. Continued rest in bed for a prolonged period should always be urged, because at any rate it removes the exciting cause. One of my cases remained free from albumin for three months after being in bed for three weeks. I believe that, by a very careful examination, a large percentage of cases will be found to contain casts, and that the serious prognosis given because of their presence will be modified."

84. **Middle-Ear Inflammation.**—Meierhof remarks in this paper that early operation, that is, incision of the drum before rupture tends to prevent later complicatons. There are some cases where early opening of the drum is not sufficient, and where early opening of the mastoid will belong to the prophylaxis of destroying ear disease. The indications for such operation will be found in a much larger number of cases than has been believed. In his experience minor treatment has been sufficient in most cases. Very few cases require major operation where the patient has had the benefit of early expert treatment.

99. **American Decadence.**—Kyger's article follows the lead of Engelmann in claiming that there is a marked decrease in fecundity in the native stock, and calls for reform.

101. **Food Preservation.**—Moechel has continued his experiments with formaldehyd and finds that it has little bad effect on human digestion, at least on pancreatic digestion. All the modifications of formaldehyd have active reducing qualities and exhibit tendencies to combine with proteids. The addition of formaldehyd to milk causes a formation of compounds, but these did not cause a perceptible loss of food value, for the pancreatic digestion causes their complete solution. This, of course, is speaking of combinations in the proportion of 1 to 20,000 or 1 to 40,000. Sulphurous acid and its salts are detrimental, and laws to regulate the use of sulphur and sulphites are imperative. They are distinctly toxic and injurious and should be prohibited in beer, cider, and especially in meat, and only used in wines in definite quantities, under the supervision of a responsible person. The use of fluor preparations should be condemned and prohibited. Salicylic acid, if used at all as a food preservative, demands legislative interference. As regards benzoic acid and sodium benzoate, while perhaps not so objectionable as some other agents, their indiscriminate use should be prohibited by law. Beta-naphthol and hydro-naphthol should not be used as food preservatives. The present state of our knowledge of saccharin does not justify recommendation or condemnation. Pyroligneous acid has not yet received study

upon these lines, but meat preserved with it should not be sold as smoked meat.

Amebic Dysentery.—McElroy gives the symptoms and history of amebic dysentery and insists on the importance of microscopic examination of stools, especially in cases resistant to treatment.

110. **Malarial Methemogiobinuria.**—This paper of Krauss' is intended to cover such points as have appeared since the last joint paper of Dr. Goltman and himself. He has modified some of his views. He finds that the estivo-autumnal parasite is sometimes the cause of fever and, therefore, it can not be excluded. It is not merely a "plus infection." The index to determine the administration or non-administration of quinin, instead of being as stated, is simply this: so long as sporulating parasites are in the peripheral blood there is no hematuria, therefore push quinin to the limit. He reiterates the conclusion, however, that when hematuria is once begun, quinin has no place. This, however, does not apply to the use of it in tonic doses in the post-hematuria period. At present Krauss does not believe that quinin hematuria is different from the malarial form. The effect of quinin on susceptible individuals seems to him to be due entirely to the amount of the hemolytic body stored up. This varies in different individuals. Some set free their storage after a single dose of quinin; subsequent doses can obviously do no further harm. Some, however, seem never to lose it, as in the cases in which all treatment has to be suspended. How much the liver has to do with this perverted metabolism is not clear, but the previously announced pathology, so far as it has reference to the liver, is clearly erroneous. The record he now gives is of 16 cases treated by the eliminative method to prevent inspissation of urine by using salt solution for injections under the skin. The treatment for the symptoms is morphin fortified with atropin for the tranquillizing effect, strychnin in free dosage, keeping the skin active with tentative doses of pilocarpin, woolen covering, together with the avoidance of drafts and stimulating diuretics. These 16 cases with no deaths contrast favorably with the former report of 12 cases with 9 deaths. Any patient whose kidneys become obstructed necessarily dies. Quinin therapy is not always fatal for reasons given. In one case the continued use of quinin for three days merely resulted in a practical exsanguination of the patient. Salt solution, bone marrow and pepto-mangan were the only agents used after suspension of the quinin; no blood could be obtained at the time and no attempt was made to get it.

111-112. **Continued Fevers of the Mississippi Delta.**—The paper by Sutherland points out the general characters and the species of the continued fevers occurring in the Mississippi delta and the difficulties met in their diagnosis. He thinks there is a partial immunity in these regions against not only typhoid but diphtheria and some other diseases, but he believes that typhoid is not uncommon. He has noticed that non-cinchonization with enormous doses of quinin is not a reliable test and that it is more difficult to cinchonize typhoid cases in the sense of producing deafness than cases of malarial fever. Evans' article discusses the following questions: 1. Is there a continued form of malarial fever? He answers, yes. 2. Is there a continued fever properly designated as typho-malarial. There have been many cases reported of mixed infection, but it is merely a dispute over names as to whether they should be called typho-malarial or not. 3. Are not some of the conditions ordinarily known as continued fever merely mistakes in diagnosis and due to leukemia, pernicious anemia, septic endocarditis with valvular implantations, tuberculosis, secondary syphilis, trichinosis, etc.? He reviews the conditions of bacterial endocarditis and tuberculosis and mentions certain others, such as secondary syphilis, and finds that there is a bacterial blood infection that is fruitful of errors of diagnosis. Many of the difficult cases, in his opinion, also belong to secondary syphilis or septic infection otherwise than in the blood. As regards the question whether typhoid fever has not caused most of these conditions, he says the symptomatic diagnosis of typhoid fever is rather difficult, but the keynote is the Widal reaction. He finds that there is no unknown or unnamed fever in which neither malarial or typhoid germs take part, and most of the cases of the supposed group are typhoid modified by malaria. He is not prepared to state whether this modification is in the germ or in the human body itself. The post-malarial continued fevers are usually malaria pure and simple, and the continued fevers left after the above have been subtracted are the following: tuberculosis, pulmonary miliary intoxications, anemia, leukemia and diarrheas.

120. **Bicycle Riding.**—Zuntz says that bicycle riding is contra-indicated in persons with heart defects or arterio-sclerosis, though it may serve as a remedy in some disease of the heart as shown by Siegfried of Nauheim. Increased respiration and increased consumption of oxygen induced by its use make it advantageous for persons with undeveloped thorax with phthisic habit or with pleuritic adhesion. In incipient phthisis it may be considered dangerous and advanced phthisis contra-indicates it. The effect on bronchitis is dependent on the avoidance of the inhalation of dust; the question whether cycling may not favor the occurrence of emphysema by the constant expansion of the chest should not be lost sight of. In all forms of nephritis it is contra-indicated and the urine should be carefully watched where there is any tendency in this direction. The reports in regard to gynecologic affections are contradictory. It is certainly to be avoided in all acute inflammations on account of the invariable tugging at the affected organs. It is also unwise during the menstrual period and pregnancy. An unfavorable effect upon the external genitalia may be exerted in either sex by an inappropriate form of saddle.

121. **Changes of Substances in the Organism.**—Wainwright's article is a very long one and highly technical, but the general conclusion seems to be that the most significant alteration of the chemicals in the body is in the production of inert and harmless substances. A law of special significance in pharmacy is the effort of the body to transmute an active substance into an acid. The acids which are produced by pairing or oxidization are resistant to change or, in other words, are inert and this acidifying quality of the organism is of fundamental importance in the synthesis of drugs.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below.

British Medical Journal (London), April 12.

1 *A Series of Cases of Fractures of the Semilunar Cartilages of the Knee, Together with Other Cases of Operation for Loose Cartilage. A. W. Mayo Robson.
2 *The Composition and Nutritive Value of Biltong. W. D. Halliburton.
3 Four Cases of Rodent Ulcer Treated by X-Rays. John W. Pugh.
4 Five Cases of Moniliform Hair Associated with Alopecia Areata. David Walsh.
5 Case of Complete Baldness from Alopecia Areata. Balmanno Squire.
6 *The Causation of Death During the Administration of Chloroform. (Continued.) E. H. Embley.

The Lancet (London), April 12.

7 *Abiotrophy. W. R. Gowers.
8 Some Abnormal Physical Conditions in Children. George F. Still.
9 *The Etiology of Typhoid Fever and Its Prevention. W. H. Corfield.
10 *Surgical Treatment of Obstruction in the Common Bile Duct by Concretions. A. W. Mayo Robson.
11 On a Case of Pneumococcic Gastritis and General Infection, with Some Remarks on the Infection of Mucous Membranes by Diplococcus Pneumoniæ. Alexander G. R. Foulerton.
12 The Treatment of Gonorrhea, with Special Reference to Bladder Irrigation. F. Swinford Edwards.
13 An Analysis of a Series of Operations for the Extraction of Cataract. R. H. Elliot.

Journal of Tropical Medicine (London), April 1.

14 Principles Determining the Geographical Distribution of Disease. (Continued.) Louis W. Sambon.
15 Note on the Spread of Yellow Fever. C. Christy.
16 Water Itch, or Sore Feet of Coolies. William E. L. Elliott.

The Practitioner (London), April.

17 *Bronchiectasis: A Clinical Study. Theodore D. Acland.
18 *Infantile Ophthalmia. E. Treacher Collins.

Bulletin de l'Acad. de Med. (Paris), March 25 and April 1.

19 Variolation in the French Colonies. Hervieux.
20 *The Biologic Blood Test. G. Linossier.
21 Chloroform and Ether Anesthesia. General Discussion Continued.
22 *Frequency and Prognosis of Actinomycosis in Man. A. Poncet.

123 Improved Aspirating Apparatus for Thoracentesis in Pneumothorax. L. E. Bertrand.
124 Suggestions for the Blind—Development of the "Sense of Obstacles." Javal.

Echo Medical (Lille), February and March.

125 Suggestion for Boards of Public Health in Affiliation with the Universities. H. Surmont (Lille).
126 Experimental Research on Toxicity of Intestinal Muçosa. J. Dunebert.
127 *Asphyxia of Extremities a Symptom of Renal Insufficiency. L. Ingelrans (Lille).

Nord Medical (Lille), April 1.

128 *Evolution of Instrumentation and Medical Technic and Its Clinical and Therapeutic Consequences. G. Lemoine (Lille).

Revue Medicale du Canada (Montreal), February 26.

129 *Oil in Abdominal Operations. M. T. Brennan (Montreal).

Berliner Klin. Wochenschrift, March 17 and 24.

130 Serodiagnosis of Tuberculosis. F. De Grazia (Genoa).
131 *Dilatation of Esophagus Without Anatomic Stenosis. T. Rosenheim.
132 Myogenic Rigidity of Spine. Cassirer. (Concluded from No. 10.)
133 *Strep.ococcus Toxin. A. Marmorek (Paris).
134 African Arrow Poisons. L. Brieger (Berlin).
135 Marie's "Osteoarthropathie hypertrophiante." Schittenhelm.
136 Aetoxyl, a New Form of Arsenic, in Dermatology. W. Schild (Berlin).
137 Bacteriology of Syphilis. M. Joseph (Berlin).
138 Mechanical By-Effects of the Respiration and Circulation. Buttersack.
139 Case of Unusual Myeloid Leukemia. Hirschfeld.

Centralblatt f. Bakt. (Jena), February 27.

140 A Rabbit Disease. R. Volk.—"Ueber eine Kaninchenseuche."
141 Fowl Plague. E. Centanni (Ferrari).—"Die Vogelpest."
142 Danysz's Rat Bacillus. G. Markel (Vienna).
143 *The Etiologic Significance of Bacillus Dysenteriæ (Flexner), as Tested by the Agglutinative Reaction with the Serum of Patients Suffering from Dysenteric Symptoms. A. G. R. Foulerton (London).
144 Immunization with Immune Substances. R. Kraus (Vienna).
145 Cultivation of Trichophyton in Situ. H. C. Plant (Hamburg).
146 Agglutination. A. Altobello (Florence).—"Ueber die Erscheinung der Agglutination."

March 3.

147 No General Infection from Intact Conjunctiva. K. Hirota (Halle).—"Ueber die Inf. vom unversehrten Bindehautsacke."
148 On the Difference in Action of the Homeoplasmatic and Heteroplasmatic Toxins Produced by the Diphtheria Bacillus. G. E. Cartwright Wood (London).
149 Pigeon Epizootic Due to Heterakis Perspicillium. T. Kasparek (Prague).
150 Pulm. Tuberculosis in a Bear. K. Geisenberg (Königsberg).
151 *Duration of Life of Tubercle Bacilli in Cheese. F. C. Harrison (Guelph).
152 Cell Inclusion, Cell Degeneration and Endocellular Parasites in Malignant Tumors. F. Sanfelice (Cagliari).
153 Oxyurides in Douglas' Pouch. R. Kolb.—"Ueber den Befund von auf dem Peritoneum des Cavum Douglasii angewachsenen Oxyuriden."

March 12.

154 Etiology of Pertussis. L. Vincenzi (Sassari).
155 Negative Attempts to Convey Lepra to Animals. Y. Tashiro.
156 Acid Proof Microbes. J. Barannikow (Charkow).—"Säurefesten Mikroben."
157 The Smegma Bacillus. A. Moeller (Belzig).
158 Comparative Tests of the Danysz and a New Bacillus Pathogenic for Rats. M. Grimm (St. Petersburg).
159 Dissemination of Ameba Enteritis. A. Ucke (St. Petersburg).
160 Revision of My System for Bothriocephalides. M. Lühe.
161 Bloch's Hymenolepis Lanceolata as a Human Parasite. F. Zschokke (Basle).
162 Burette for Sterile Fluids. S. Epstein (Prague).

Centralblatt f. d. Grenzgebiete (Jena), 5 to 7.

163 *Hemoglobinuria. W. Stempel (Breslau). Collective Review.

Deutsche Med. Wochenschrift (Leipsic), April 3.

164 *Healed Bullet Wounds of the Head. E. v. Bergmann (Berlin). "Geheilte Schädelschüsse."
165 *Technique of Examining for Appendicitis. E. Rose (Berlin). —"Die Untersuchungsmethode Bauchkranker auf Wurmfortsatzentzündung."
166 *Transplantation of Testicle in Scrotum. J. Wolff.—"Ueber die blutige Verlagerung des Leistenhodens in das Skrotum."
167 *Surgical Treatment of Ascites in Case of Cirrhosis. H. Kuemmell (Berlin).—"Die chir. Beh. des Asc. bei Lebercirrhose."
168 *Cure of Osteomalacia in a Nullipara by Castration. E. Hollaender (Berlin).
169 *Vibrating Urethral Sound. Lankowski (Berlin).—"Die Vibrirsonde."
170 Report of Official Tests of Baccelli's Treatment of Foot and Mouth Disease. Loeffler and Uhlenhuth.

Klin. Therap. Wochenschrift (Vienna), 13 and 14.

171 *Clinical Importance of Seborrheic Eczema. G. Bonne (Klein-Flottbek).
172 Bacteriology of Syphilis. Von Niessen (Wiesbaden).

Muenchener Med. Wochenschrift, April 1.

173 *Surgical Treatment of Puerperal Pyemia. F. Trendelenburg (Leipsic).—"Ueber die chir. Beh. der Puerp. Pyämie."
174 *Regeneration of Long Bones in Case of Osteomyelitis and Tuberculosis. F. Berndt (Stralsund).—"Ueber Exstirpation und Reg. langer Röhrenknochen bei Ost. und Tub."
175 Recovery After Op. Treatment of Multiple Abscesses in Liver. M. Wilms.
176 *Bacterial Invasion of Circulation One Cause of Urethral Fever. R. Bertelsmann (Hamburg).
177 *Insufficient Tension of Muscles and Its Treatment. F. Lange (Munich).—"Ueber ungenügende Muskelspannung und ihre op. Beh."
178 Treatment of Erysipelas in Red Light. H. Krukenberg (Liegnitz).—"Ueber die Beh. des Erys. im rothen Zimmer."
179 Finsen's Light Treatment. A. Sack (Heidelberg).

Zeitschrift f. Klin. Med. (Berlin), xliv, 5-6.

180 Heart Failure from Diphtheria Toxin. K. v. Stejskal (Vienna).—"Klin. und exp. Untersuch. um den Herztod in Folge von D.-toxin."
181 *Traumatic Affections of the Heart. W. Ercklentz.
182 Diet in Kidney Disease. Kaufmann (Frankfurt a. M.).
183 *Intestinal Putrefaction with Varying Diet and in Various Physiologic Conditions. W. Backman (Jakobstad, Finland).

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184 *Gastric Achylia. L. Kuttner.—"Zur Frage der Ach. gast."
185 The Will. A. Adamkiewicz (Vienna).—"Wie verrichtet der Wille mechanische Arbeit?"
186 *Influence of Antipyresis on the Agglutinating Power of the Blood in Typhoid Fever. M. Beniasch.
187 Identity of the Ozena and Rhinoscleroma Bacilli with Friedlaender's. F. Klemperer.
188 (Case Reports.) A Leukemioid Affection. L. Michaelis.—Peculiar Pneumothorax. G. Jochmann.

Anales de Oftalmologia (Mexico), March.

189 *Ocular and Visual Disturbances Induced by Tobacco. Juan Santos Fernandez (Havana).
190 Phorometric Mirror. E. F. Montano (Mexico).—"Nota acerca de un modelo de espejo forométrico."

Gazzetta degli Ospedali (Milan), March 30 and April 6.

191 Enzymes in Tetanus Cultures. M. Collina (Bologna).
192 Path. Anat. of Sarcomata in Brain. V. Giovanni (Crema).
193 *Antithermic Therapeutics. Maragliano (Genoa).
194 *Pathogenesis of Exophthalmic Goiter. E. Tedeschi.
195 Therapeutic Value of Acetopyrin. A. Beretta (Bologna).
196 (Case Reports.) Calculosis in Female Urethra. Natale.—Wound in Lung. Stella.—Unsuccessful Sympathectomy for Glaucoma. Fabris.—Two Cases of Hydrocele in Women. Montini.—Three Cases of Diffuse Hyperostosis in Hereditary Syphilis. Casavecchia.
197 Operative Treatment of Painful Chronic Metritis. G. Ruggi. "Resezione verticale della materia in sostituzione dell' isterectomia nei casi di metrite cron. dolorosa."

Sei-I-Kwai (Tokio, Japan), xxi, 1.

198 *On the Propagation of Vaccine from Calf to Calf. S. Umeno.

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1. **Internal Derangements of the Knee.**—Robson reports a large number of cases and gives his views in regard to the condition. The operation which he advises is one of the simplest. An oblique incision is made from the interior border of the lower end of the patella downward and backward, down to and through the synovial membrane so as to open the joint freely without dividing either the ligamentum patella or the internal ligament. If the external cartilage be displaced, the incision is, of course, on the outer side of the joint. On retracting the edges of the incision and flexing the knee, displacement at once appears. To seize the loose portion of the cartilage and snip it off by means of scissors is the work of a few minutes, after which the synovial membrane, the capsule of the knee and the skin are separately sutured, the strictest asepsis being observed throughout. It is unnecessary and undesirable to insert the finger into the joint or to syringe the articular cavity. Formerly he used to try to fix the cartilage in position by sutures, but has abandoned this and simply cuts it away and has never seen any inconvenience result from the loss. From his experience he would advise in case of recent injury with signs of internal derangement, treatment of the case as if it were a fractured bone; first replacing it by the ordinary method long ago described by Hey and then fixing the knee in a splint until all the effusion has subsided, afterwards applying plaster or starch bandage and allowing the patient to either rest completely for a month or six weeks or to go about on a Thomas knee splint and later, securing a return of function in the knee by massage and gentle movements. If, after this thorough treatment, there should be any tendency to weakness or recurrence of the displacement he would unhesitantly advise operation. If thorough treatment has not been adopted in the first place and recurring displacements have called the attention of the physician from the first, he advises operation at once.

2. **Biltong.**—This is the name given by the South Africans to

a dried meat which Halliburton has investigated as to nutritive qualities. He finds it readily digestible in artificial mixture in a flask. As digestion in the body is still more efficient his experiments show that it is a valuable nutritive substance.

6. **Death from Chloroform.**—This installment of Embley's article discusses the relations of the vagus inhibition as the cause of cardiac failure. Experiments, made as in the former article, are described and the tracings given. The summary of conclusions as to the effect of chloroform upon cardiac and inhibitory mechanism is given as follows: "It was soon found that the sensitiveness of the inhibitory mechanism varied greatly with the methods employed for preparing the animals for connection with the manometer, etc., and that if the animal had been anesthetized by chloroform without morphin in order to perform the surgical work, normal vagus control was more or less completely abolished by the time the record was started. On the other hand, when morphin alone was used prior to the establishment of the connection with the manometer, the vagus control was found to be unimpaired. One hundred and twenty experiments were made to ascertain the part played by vagus inhibition in chloroform poisoning. In 54 cases vagus inhibition embarrassed the circulation to a more or less dangerous extent, and in 33 experiments was the immediate cause of death. To sum up: 1. A heart which has been poisoned by inhalations of chloroform of strength of 2 per cent. and upwards can always be permanently inhibited by stimulation of the vagi with the faradic current when the blood pressure has fallen to about 40 to 50 mm. of mercury pressure. 2. Chloroform raises the excitability of the vagus mechanism, particularly in the early part of the administration. 3. The increased excitability of the vagus mechanism is due to the action of chloroform on the vagus centers, and the inhibitory action is more intense from being exercised upon a heart whose spontaneous excitability is diminished by the action of the chloroform upon it. 4. Chloroform administered to morphinized dogs in air containing not more than 1.5 per cent. of the vapor, after a period of mild excitation, slowly depresses vagus excitability. The excitability may again be raised with more or less readiness, according to the duration of the administration and the endurance of the vagi, by increasing the percentage strength of the chloroform, or by asphyxia. 5. Vagus inhibition is, in dogs, the great factor in the causation of sudden death from chloroform. 6. Dangerous inhibition is liable to occur whenever the strength of chloroform in the air inhaled rises above 2 per cent."

7. **Abiotrophy.**—This is the name given by Gowers to the gradual degeneration or failure of vitality as shown in various conditions, such as baldness or falling out of the hair, diseases of the muscles like muscular atrophy and specially the neuronic failure characterized by sclerosis, the interstitial tissue having apparently an inverse vitality. When the nerve elements decay the connective tissue overgrows. The various forms of degenerative nerve derangements, due to a lack of vitality, which he calls abiotic are noticed, such as infantile atrophy, optic atrophy, spastic paraplegia, Friedrich's disease, paralysis agitans, tabes and paresis.

9. **Typhoid Fever.**—This second lecture by Corfield continues the discussion of the causation of typhoid, particularly the infection by water and milk.

10. **Bile-Duct Obstructions.**—Robson finds that out of some hundreds of cases of cholelithiasis, on which he has operated, the common bile duct has been attacked in one out of every five or six cases. In a few cases the concretion can be manipulated backward into the gall-bladder and then extracted, but this can be done only when the cystic ducts are dilated. He has been able thus far to clear the ducts on 10 occasions. Occasionally a small stone may be pressed into the duodenum, but this is unadvisable, as it may be pushed into the diverticulum of Vater and be missed. In patients too old or too ill to bear choledochotomy, a rapid cholecystotomy may be performed to relieve the jaundice and also permit solvent injections to be employed, but his experience with this has not been very favorable. Crushing concretions by pressure of the finger and thumb through the duct walls has been used with some success, but it is only available in soft concretion and may leave fragments that will cause further trouble. Cholecystenterostomy, or short-circuiting the obstruction, should never be performed for gallstones as it leaves the cause untouched and the small opening is apt to contract and to lead to speedy recurrence of symptoms. This has actually occurred in his own practice and in that of other surgeons. If the patient is too ill for choledochotomy, the gall-bladder can be very readily united with the colon with very little disturbance of adhesions; this is a means of giving relief quite as efficacious as the more difficult operation of uniting the gall-bladder and duodenum. This, however, is only possible when the gall-bladder is dilated, which is unusual in cholelithiasis. He has twice united the dilated duct to the intestine and once drained the dilated duct onto the surface, with recovery. Reaching the common duct through the duodenum seemed an ideal operation at first, but he thinks there is a great danger of sepsis by this method owing to the necessary enterotomy and, since his modified operation, he has abandoned it. The only method which is, as a rule, worth relying upon is choledochotomy, and he gives his technic. It requires the help of but one assistant, no special apparatus and the time involved is much reduced. He puts a firm sandbag under the back opposite the liver, which presses the spine and common duct forward so that it is several inches nearer the surface and acts as a Trendelenburg position in pelvic surgery by letting the viscera fall away from the field of operation. He says: "I then make a vertical incision over the middle of the right rectus, the fibers of which are separated by the finger, which I find to be the most expeditious and the most effective method of exposing the gall-bladder and bile ducts; but when it is necessary to open either the common duct or the deeper part of the cystic duct, instead of prolonging the incision downward, as was formerly done, I now carry it upward in the interval between the ensiform cartilage and the right costal margin as high as possible, thus exposing the upper surface of the liver very freely. It will now be found that by lifting the lower border of the liver in bulk (if needful, first drawing the organ downward from under cover of the ribs) the whole of the gall-bladder and the cystic and common ducts are brought close to the surface, and as the gall-bladder is usually strong enough to bear traction, the assistant can take hold of it by fingers or forceps and, by gentle traction, keep the parts well exposed, at the same time that, by means of his left hand with a flat sponge under it, he retracts the left side of the wound and viscera, which would otherwise fall over the common duct and impede the view. It will now be observed that, instead of the gall-bladder and cystic duct making a considerable angle with the common duct, an almost straight passage is found from the opening in the gall-bladder to the entrance of the bile duct into the duodenum and, if adhesions have been thoroughly separated, as they should always be, the surgeon has immediately under his eye the whole length of the ducts with the head of the pancreas and duodenum. So complete is the exposure that, if needful, the peritoneum can be incised and the common duct can be separated from the structures in the free border of the lesser omentum, but this is not necessary except where a growth has to be excised. The surgeon, whose hands are both free, can now, with his left finger and thumb, so manipulate the common duct as to render prominent any concretions, which can be cut down on directly, the edges of the opening in the duct being caught by pressure forceps. The assistant can now take hold of the forceps with his left hand, and that instrument with the sponge will form a sufficient retractor—since the duct is so near the surface. When the duct is incised, there is usually a free flow of bile which, it must be remembered, is probably infective, but a sponge in the kidney pouch and the rapid mopping up of the flowing bile by means of sterilized gauze pads will avoid any soiling of the surrounding parts; if necessary, the bulk of the infected bile can be drawn off by the aspirator either from the gall-bladder or from the common duct above the obstruction before the incision into the duct is made. After removing all obvious concretions, the fingers are passed behind the duodenum and along the course of the hepatic

ducts to feel if other gallstones are hidden there, then a gallstone scoop, the only special instrument that I use, is passed up quite into the primary division of the hepatic duct in the liver and quite down to the duodenal orifice of the common bilt duct, and, if thought necessary to insure the opening into the duodenum being patent, a long probe is passed into the bowel. The incision into the bile duct is now closed by an ordinary curved round needle held in the fingers without any needle holder, a continuous catgut suture being used for the margins of the duct proper and a continuous fine green catgut or spun celluloid thread being employed to close the peritoneal edges of the gut. In such cases, where the pancreas is indurated and swollen from chronic pancreatitis and is likely to exert pressure on the common duct for a time, I insert a drainage tube directly into the duct and close the opening around it by a purse-string suture, the tube being fixed into the opening by a catgut stitch, which will hold for about a week, but where this is not done I usually fix a drainage tube into the fundus of the gall-bladder in the same way, as this drains away all infected bile and avoids pressure on the newly sutured opening in the duct." After the operation he usually inserts a gauze drain through a slit drainage tube, bringing it out either through a stab wound in the loin or forward by the side of the gall-bladder drain. The wound is closed in the usual way by continuous catgut sutures, first to the peritoneum and deep rectus sheath and lastly to the skin. In these operations hemorrhage either immediate, consecutive or secondary can not be ignored as a danger and shock, apart from hemorrhage, has next to claim our attention. Sepsis is no longer a special bugbear with modern methods. Robson thinks there is no doubt that in all cholemic conditions the blood becomes so altered that coagulability becomes seriously diminished. He has used Professor Wright's researches on the coagulability of the blood, and in the last two years has employed chlorid of calcium in apparently heroic doses to obtain the real value of the drug, using 30 gr. doses by the mouth and afterwards 60 gr. doses by the rectum twice daily for several days. It is important to ligate all the bleeding points and not to trust simply to forcipressure and, while in non-jaundiced patients adhesions may be simply separated, in these cases he prefers to divide adhesions between ligatures where practicable. Where there is much oozing of blood he prefers tampons of sterilized gauze and perhaps a solution of suprarenal extract to the bleeding surfaces. The best treatment of shock is preventive. The patient should be protected as far as possible from loss of blood, the operation performed on a heated table, the patient well protected from chill and large enemas of normal saline solution with or without stimulants given from 15 to 20 minutes before. The administration of strychnia subcutaneously just before anesthesia is useful and rapidity of operation is important. Choledochotomy should occupy from one-half to one hour and perhaps a little longer if complicated, but two, three or four hours indicate lack of skill or judgment. After operation a pint of saline solution with one ounce of brandy is given by enema. Strychnia subcutaneously every two hours for several hours is called for. The mortality of his whole series of 60 choledochotomies is 16.6 per cent., while those subsequent to January 1, 32 in number, show 7.1 per cent. of deaths, which were, he believes, from unpreventable causes, in one case heart disease, another pulmonary congestion and shock; ether anesthesia by the old rubber bag apparatus—since discarded, he thinks having much to do with the case.

17. **Bronchiectasis.**—Acland says his "conclusion is inevitable that, in the adult, bronchiectasis, when once fairly established, is, except in very rare instances, incurable by any method of treatment at present available. In some of the more acute cases in young persons, cure may occasionally result. In chronic cases the distress of the condition can often be greatly relieved and, if the exciting cause of the disease is not progressive, life can frequently be greatly prolonged."

18. **Infantile Ophthalmia.**—The measures which at the present time seem best qualified to reduce the amount of blindness are summarized by Collins as follows: "1. Compulsory notification of cases of ophthalmia neonatorum by all persons attending women in labor other than medical men. 2. Instruction as to the importance of the universal adoption of prophylactic measures (preferably Credé's method, or the use of a sublimate solution, 1 in 2000, or protargol 20 per cent.) by all lecturers and writers of text-books on midwifery. 3. The appointment of ophthalmic surgeons to maternity institutions, more especially those which provide for attendance of women at their own homes. 4. The provision in all midwifery bags of a drop bottle labeled 'drops for the eyes.' 5. The better training of monthly nurses in the methods of aseptic cleanliness."

20. **Biologic Test for the Blood.**—Linossier denies that the reaction to the serum in the biologic test for the blood is specific, as was assumed at first. Although it is not specific, yet it occurs with greater rapidity and distinctness in the homologous serum, and it is possible, by diluting the blood to be examined, to reduce it to such a point that only the homologous serum has any action upon it. This has generally been done unconsciousiy in the tests as only minute quantities of the blood were used. The precipitum obtained is smaller in amount the more remote the animals in the scale of living beings from the one whose serum was used to prepare the rabbits for the test. The serum of a rabbit, for example, that had been prepared by intraperitoneal injections of human serum, ascitic fluid or pleuritic effusion, precipitated in a 10 per cent. dilution human, beef, horse, dog, sheep, pig, guinea-pig and fowl serum. But the intensity of the reaction diminished progressively from the first to the last. Another rabbit inoculated with serum from a heifer, precipitated in the same dilution, heifer, horse, sheep, man, pig, dog and fowl serum in progressively diminishing intensity. It precipitated the heifer serum at 1 per 5000, the horse serum at 1 per 300 and human serum at 1 per 50. Linossier noticed that a 1 per 1000 dilution of the blood to be examined gave the reaction with the homologous prepared serum, while no other serum had an influence upon it at this dilution. The fact that this reaction is only apparently and not actually specific does not detract from its medicolegal value if the possibility of error from this source is recognized and measures taken to prevent it by adequate dilution of the blood to be examined. The diluting fluid for the blood should be neutral or slightly alkaline.

22. **Frequency and Prognosis of Actinomycosis in Man.**—Poncet mentions that only 146 cases of actinomycosis in man have been published in France, and these all come from the large medical centers: Paris with 33, and Lyons, his home, 47. At other points the affection is evidently unrecognized, as it is absurd to suppose that it is restricted to the counties with medical schools. Duvau's 1902 thesis is based on the study of 257 cases. The affection proved fatal in those in which deep-seated organs were involved. The mortality has been 2 per cent. for the cutaneous forms; 10 per cent. in the superficial cervico-facial forms; 30 per cent. in the deep temporo-maxillary lesions; 65 per cent. in the abdominal variety; 85 per cent. in the thoraco-pulmonary form and 100 per cent. when in the liver or brain. Poncet has been very successful in treating it with the curette and drainage, supplemented by large doses of potassium iodid as if for a severe case of syphilis. He commences with 4 gm. and increases to 5 or even 8 gm. with intermissions. He states that this treatment is more effective the more recent the lesion, before mixed infection is established.

27. **Asphyxia of Extremities a Symptom of Renal Insufficiency.**—Ingelrans presents arguments to prove that local asphyxia of the extremities is due to hyperexcitability of the vasomotor system determined by insufficiency of the kidneys. The latter causes the retention of multiple poisons, some of which have a decided vasoconstricting action. When Raynaud's disease and nephritis co-exist, the former is the result of this cause. The nephritis is the primary affection.

28. **Evolution of Instrumentation and Medical Technic and Its Consequences.**—This is the presidential address delivered at the recent French Medical Congress. Lemoine, while reviewing and lauding the wonderful progress in the technic of diagnosing by means of perfected instruments, etc., pointed out

the disadvantages that have resulted. One is the shortening of the distance between the elite of the profession and the empiricists. The physician of the present is inclined to rely too much on his technic and neglect clinical observation. It seems also as if the simplification of instruction had entailed a corresponding loss of effort on the part of the student, so that general culture loses rather than gains by this learning-made-easy. Our predecessors in medicine based their diagnosis on an accumulation of small signs for which they were ever seeking the general connecting links. This pathologic philosophy is the key to many otherwise inexplicable phenomena and its neglect nowadays is a loss. Another of the tendencies of the day is the contempt for the theoretical foundations of medicine. Lectures on this subject are neglected while the students flock to the clinics to observe merely isolated facts. One of the principal factors in curing disease is the faith inspired by the superior intellectuality of the physician. The patient is cured by the physician's words as much as by his remedies, but these words must convey an authority to impress and convince the patient. Any descent from the high classic culture of the past is a menace to this superiority and to the rôle of suggestion expected of the physician. The best means of restoring the prestige of the profession is for the physician to be as far as possible above the level of his contemporaries. He concluded with the prophecy that the reign of the pharmacopeia is almost at an end. The future of therapeutics in the twentieth century is entirely in the line of organic serums, antitoxins and physical measures.

29. **Oil in Abdominal Operations.**—Brennan has been using olive oil for twelve years to prevent the formation of adhesions after abdominal operations. The oil also serves to soothe existing inflammation and ward off recrudescence and, as it is absorbed, it aids in the nourishment of the patient. He believes that it checks the development of germs. Another advantage of its use is that gauze drains, etc., can be removed later without sticking. The oil is even more effective in this respect than hydrogen dioxid. He sterilizes it under a 15-pound pressure at 250 F. He uses a variable quantity, sometimes as much as 600 c.c. and soaks all the draining wicks in it. Even when he does not drain, he pours a little oil into the abdomen or applies it on a pad, spreading it with the fingers to all the pelvic organs, especially those with raw surfaces or exudation. He believes that it has been the chief factor in the cure of many of his serious cases. It has proved exceptionally beneficial in severe inflammation of the adnexa and appendix, with suppuration and adhesions and in peritonitis.

31. **Dilatation of Esophagus Without Anatomic Stenosis.**—Rosenheim has observed four cases of this so-called idiopathic dilatation of the esophagus. One patient was a man of 55 and treatment of the spasm only aggravated the pre-existent esophagitis. Recovery was rapid when mild local treatment of the inflammation was instituted with rest in bed, hydrotherapy and injection of a 1 per cent. solution of silver nitrate in the upper third of the esophagus and 4 per cent. eucain below. The patient was dismissed in five weeks entirely relieved of his troubles. Another patient was much benefited by forcible dilation with sounds. The reaction of the cardia to the contact of the sound is not a reliable criterion to determine its functional capacity.

33. **Streptococcus Toxin.**—Marmorek announces that all streptococci, whatever their origin, produce the same toxin. It belongs to the group of diastases which succumb to a temperature of 70 C. The serum derived after inoculation with one kind of streptococcus is effective against the toxin elaborated by all the other varieties.

43. **Agglutination of Dysentery Bacillus.**—Foulerton found that the agglutinative reaction with the bacillus dysenteriæ was the same with serum from home cases of dysentery as with that from cases occurring abroad. He found the test positive in six out of seven at a dilution of 1 to 40 and even 1 to 100 in some instances. There was no agglutination with the typhoid bacillus.

51. **Duration of Life of Tubercle Bacilli in Cheese.**—Harrison reports that no tubercle bacilli can be found alive in Canadian Cheddar cheese after ten weeks at the utmost.

63. **Hemoglobinuria.**—Stempel reviews 151 articles on this subject with 14 additional on the infectious and 31 on the toxic variety. There has been scarcely a single case of paroxysmal hemoglobinuria reported which proved fatal or in which there were evidences of any permanent injury of the kidneys. But the infectious and toxic varieties were almost universally fatal. This was due in part to the more complete obstruction of the tubules with masses of hemoglobin and the resulting uremia, and in part to the frequently associated acute nephritis. The elimination of albumin and tube casts may persist for weeks in the infectious and toxic forms. The regeneration of the blood proceeds much more rapidly and perfectly in the paroxysmal variety. Toxic hemoglobinuria has been induced by hemoglobin itself, as in cases of extensive burns or freezing in which large amounts of the reds were destroyed. This fact has been confirmed experimentally and in practice, as after the transfusion of lamb's blood, etc. Other substances liable to induce hemoglobinuria are snake venom, the mushroom *helvella esculenta* under certain conditions, sulphuric, hydrochloric, oxalic and pyrogallic acid and anilin oil. Among the medicines which have produced hemoglobinuria is potassium chlorate. Stempel observed a fatal case in a robust young person after ingestion by mistake of a solution of this substance recommended for a gargle. An infant with thrush also died of hemoglobinuria in a few days after its mouth had been wiped out several times with the powder. Carbolic acid and the allied benzol combinations are also liable to induce hemoglobinuria as the principal symptom of intoxication, both when ingested or applied to a large superficial area. Schellenberg has reported 30 cases of toxic hemoglobinuria from the use of a 10 per cent. emulsion of glycerin and iodoform. In the mild cases the urine was reddish for four hours, with slightly accelerated pulse and temperature. In the severe forms the symptoms are more intense and may entail anuria and death, with indications of recent inflammation in the kidneys. The toxic dose he found to be 10 gm. for children and for adults 20 to 25 gm. The walls of an abscess cavity absorb very slowly and in very small amounts, but absorption is rapid in the serous membranes of a joint and on the surface of a recent wound. Various gases are able to induce hemoglobinuria, sewer gas and the products of the consumption of illuminating gas. A gas stove without outlet for the products of combustion was installed in Stempel's operating room, and he found that he was having hemoglobinuria which was finally traced to this source. Examination of the air over the stove showed the presence of acetylene gas. He warns against the use of illuminating gas in an operating room, among other reasons on account of its possible union with chloroform to form a toxic combination. Two cases have been reported of hemoglobinuria consecutive to the reabsorption of large intra-abdominal hemorrhages. In regard to quinin, it seems to be established that one form of hemoglobinuria in malaria can only be cured by quinin, while another form is directly induced by the quinin. Koch recommends copious drinking of fluids during a malarial attack when no parasites are to be found in the blood, in order to prevent the formation of infarcts of hemoglobin. If the parasites are present in the blood he advises very small amounts of quinin or better still to substitute it with 1 gm. a day of methylene blue.

64. **Healed Bullet Wounds of the Head.**—Von Bergmann describes some cases to sustain his opinion that it is better to refrain from trying to extract the bullet when it is of the ordinary 5 to 9 mm. caliber from a small weapon. The wound soon heals if kept aseptic, and it is possible for even very severe symptoms to subside in a short time. On the other hand, it is sometimes impossible to locate the bullet, even with the aid of skiagraphy, and the traumatism resulting from the search for it is more injurious than the effect of the bullet left to itself.

65. **Examining for Appendicitis.**—Rose reiterates his conviction, which experience has more and more confirmed, that an otherwise healthy person should not and does not die of ap

appendicitis unless operation is deferred until too late. The indications are the same as for an incarcerated hernia. He is amazed at the number of instances in which the appendicitis was unrecognized, as in a case he describes at length which was reported as a fatal traumatic abdominal affection. The autopsy disclosed recent, acute diphtheritic appendicitis and diffuse peritonitis without adhesions. This violent form of appendicitis is usually fatal in less than eight days, before there is time for a palpable tumor to develop, and before the appendix has perforated. The toxins generated in the appendix are able to penetrate its walls and induce the peritonitis in such cases. Many persons have succumbed to this affection, which has been erroneously designated peritonitis, disregarding the primary focus of infection in the appendix with its apparently intact walls. The intestines must be emptied before it is possible to palpate them understandingly. Just as an ulcer on the foot requires cleansing and removal of the crusts before disinfection is possible, an ulcerating intestine should be freed from stagnating fecal matters by small doses of castor oil or, in case of typhoid, large doses of calomel. After the intestines are empty and the patient restricted to a milk diet, the characteristic painful point must be sought with gentle pressure, regardless of the absence of spontaneous pain. The more systematically and scrupulously this is done, the less frequent will become the cases of "latent" or "masked" appendicitis. In the very violent forms, the slightest touch to the specific painful point causes intense pain, and the earlier this is discovered the better the chance for successful surgery. The appendix lies in such a sheltered spot that this characteristic painful point does not come in contact with anything external that elicits the pain, and thus it is ignored unless carefully sought for some traumatism occurs. This explains why appendicitis in many cases is referred to a traumatism. The contusion elicited the characteristic pain for the first time, but it could have been produced before if it had been sought. The simultaneous appearance of continuous vomiting and slight fever should be the signal for operating without waiting for the development of dulness or a perityphlitic tumor. The dangers of appendicitis are still underestimated.

66. **Transplantation of the Testicle in the Scrotum.**—This article, by the late Professor Wolff, is based on his experience in five cases, the patients 3, 4, 10, 18 and 20 years old. The transplantation of the testicle is as effective as its extirpation in the treatment of cryptorchidism, while the moral effect on the patient is far better. In his five cases, although the testicle was usually higher than normal after it was transplanted, there was no inflammation even during the stress of military service. There is no case on record, he states, in which a malignant neoplasm developed in the transplanted testicle. It is much more liable to this in its ectopic position. The technic of transplantation from the inguinal region is extremely simple. In all his cases the testicle increased in size after its removal, although it never became as large as its mate. Retention of the testicle should be treated in this way without waiting for disturbances to develop, except in the cases in which spontaneous descent is still possible, aided perhaps by manipulative measures. Extirpation should be reserved for suspected cancerous degeneration. The same rules apply to the testicle retained in the abdomen or inguinal region as to a normal testicle, and it should not be sacrificed any sooner.

67. **Surgical Treatment of Ascites in Case of Cirrhosis.**—Kümmell doubts whether the establishment of a collateral circulation in case of cirrhosis of the liver will ever result in a complete cure. But it relieves the patient of the most distressing symptom, the ascites, and reduces the size of the liver and spleen and thus enables him to resume his occupation for a longer or shorter time. In one of his seven cases thus treated the operation was done unconsciously during a laparotomy for the relief of an assumed hydatid cyst. The omentum kept protruding through the wound in spite of all efforts to reduce it and was finally sutured in the wound. This was in 1887. When the patient was seen again three years later, there was a network of congested veins around the wound. The ascites and liver tumor had vanished and the patient had been permanently restored to business. This inexplicable success was not comprehended until Ta'ma's recent announcements of the benefits to be derived in such cases from fastening the omentum to the abdominal wall to establish collateral circulation. The Talma operation was combined with herniotomy in another case, curing the patient of the ascites at the same time as of the liver tumefaction. He died of an intercurrent erysipelas five days later, and the abdomen was found free from ascites. One of the most successful operations was on a man of 54, who was in an almost moribund condition when operated on. The increasing ascites rendered the reduction of an old hernia impossible, and the liver extended nearly to the rim of the pelvis. There was occasional delirium. The operation was followed by threatening collapse the seventh day and a brownish ascitic fluid trickled from the wound. The general health began to improve the fourteenth day and the patient could get up the thirtieth, and was dismissed ready for work twelve weeks after the intervention.

68. **Cure of Osteomalacia in a Nullipara by Castration.**—Holländer adds another to the three cases of osteomalacia in nulliparæ cured by castration. The pains disappeared immediately after the operation and the patient can now take long walks. The osteomalacia was not so pronounced as in the puerperal form, but the gait and pains were characteristic. The patient, aged 36, had been treated for nearly ten years for supposed rheumatism. The diagnosis was confirmed by radioscopy.

69. **The Vibrating Sound.**—Laskowski attributes the beneficial effects of the sound in urethral affections to the massage which it induces. He has succeeded in materially increasing the amount of massage by constructing a sound on the principle of vibration instruments. After numerous trials of various devices he recommends a large metal sound fitted into the rolled end of a wide metal spring, wider and stronger than a watch spring. The end of the spring holding the sound is screwed flat between two narrow metal plates fastened together with two thumb screws and nuts. The sound is inserted in the urethra and slight blows are struck on the projecting coil of the spring with a padded mallet. The vibration thus induced is not disagreeable and is not followed by any inconveniences. It can be repeated every second or third day or even daily if necessary. The sound used is as large as can be introduced without pain, as the walls of the urethra respond better to the vibration when they are stretched. The effect was favorable in cases of over-stimulation as well as in those of relaxation. Abnormal sensations in the urethra were banished. Incontinence of non-central origin was cured, and the effect was most excellent, or at least satisfactory in all cases of sexual neurasthenia, phosphaturia and prostatorrhea. Recent inflammation and the presence of gonococci are contra-indications. At first the suppuration and filaments seem to increase, but this is merely the cleansing effect of the procedure, and is soon followed by thinner secretions and decreasing numbers of filaments. (See cut in original.)

71. **Clinical Importance of Seborrheic Eczema.**—Bonne emphasizes that the coincidence of Unna's eczema seborrhoicum with adenoids and the lymphatic constitution is not casual, but that the former is the causal basis of this constitution. This variety of eczema is also directly related to the uric acid diathesis and certain forms of asthma and possibly, in connection with the uric acid diathesis, favors the development of carcinoma. The eczema is in every case the direct cause of the so-called scrofulous tendency. Infants should be protected against infection from seborrheic mothers, nurses and attendants, and strengthened by hygienic measures of all kinds and moderation in eating. Adenoids and enlarged glands should be removed without delay. All manifestations of eczema and of catarrh of the mucous membranes should be thoroughly treated. These measures should be supplemented by the occasional internal use of tar-water, which he considers the best of all remedies for the tendency to eczema. In his experience, every patient with carcinoma was or had been affected with

eczema, and he is convinced that further research will confirm this connection between them and indicate new lines for prophylaxis.

73. **Surgical Treatment of Puerperal Pyemia.**—Trendelenburg refers only to that form of pyemia of uterine origin due exclusively or principally to septic thrombosis of the veins of the uterus. The success of operative treatment of otitic pyemia, by evacuating the sinus transversus and ligating the inferior jugular vein, inspired him to attempt a similar procedure in puerperal pyemia. The conditions are much less favorable in the latter as the vein trunks are more numerous and less accessible, but it is possible to overcome all difficulties and operate outside of the peritoneum. The first chill in pyemia is the signal that the enemy is installed and has opened fire. If no other cause can be assigned for the chill and a second follows, it is more than likely to be due to pyemia and operative intervention is indicated at once. Bimanual investigation will reveal on which side the thrombosis is located or whether it is bilateral. In the autopsies of 21 cases the thrombosis was single in only 7, and on both sides in 14. In 5 it was limited to the veins of the parametrium and in 9 the vein trunks were involved. The uterine was affected twice as often as the ovarian. It is therefore advisable in doubtful cases to ligate the uterine on both sides, ligating the ovarian later if need be. Even in long-established cases the ligation of these veins is liable to have a decidedly favorable effect on the infection. Trendelenburg reports one case in which a vi-para, 35 years of age, unmistakably owed her life to the ligating of the uterine vein on the right side, followed by that of the ovarian. Fever and daily chills, from three-quarters to two hours in length, followed an abortion at three months. A tumor the size of a small egg, painful on pressure, was discovered in the right parametrium. It was evacuated through the vagina after a futile exploratory laparotomy on the mistaken diagnosis of a pyosalpinx. The abscess was in the broad ligament and the pus contained streptococci. The chills continued, one or two a day, two hours long, and the twenty-third day after the first operation the right uterine vein was divided between two ligatures just above its junction with the external iliac. The vein below was discolored, but there were no evidences of thrombosis. The wound above Poupart's ligament was partially closed and drained with gauze. There were no further chills during the next ten days, and the patient felt subjectively much better. The chills then recurred, at first short, but gradually increasing in length and frequency and the strength rapidly declined. One month after the first intervention the ovarian vein was exposed through an incision on a level with the lower pole of the kidney, the incision carried downward from the tip of the eleventh rib. About 5 cm. of the vein was resected. The lower portion was obstructed with a grayish-yellow thrombus, while the upper portion was free. The thrombus contained quantities of cocci. There were no further chills; merely an occasional chilly feeling until the sixteenth day, when a metastatic abscess in the right scapular region was opened, after which the patient recovered her health and weight, although irregular fever persisted for a long time. She was dismissed in satisfactory condition December 18. The abortion occurred, August 31. This is the first case of puerperal pyemia cured by ligating the veins. It suggests that prompt surgical intervention may prove effective even in the acute form.

74. **Regeneration of Long Bones in Osteomyelitis and Tuberculosis.**—Berndt observed in all of his 40 cases of osteomyelitis and tuberculosis during the last five years that the primary focus was in the bone marrow. After evacuation of the surrounding pus, this small focus generally healed spontaneously. In the cases in which the severe symptoms persisted after evacuation, and amputation seemed inevitable, he succeeded in curing a number by complete extirpation of the bone affected. He found that in every instance new bone tissue formed, thus preserving a good limb, only slightly shorter than normal. In the first patient the entire tibia except the lower epiphysis was involved in the osteomyelitic process. The pus had perforated into the knee. One year after the operation the boy, now 8, is in perfect health. The leg is 4 cm. shorter than the other. In a girl of 15 the entire lower half of the femur was removed. It regenerated slightly in excess of normal. The other cases were equally satisfactory. In one the clavicle was removed and regenerated, in another the entire humerus, on account of a recurring tuberculous lesion. The indispensable conditions are the retention of the periosteum and the non-closure of the wound. The periosteum requires a certain irritation to stimulate it to bone formation. The bone did not regenerate in the cases in which the wound was closed at once. Radiographs are appended showing the almost normal aspect of the bones.

76. **Urethral Fever Due to Penetration of Bacteria into Blood.**—This communication from Wiesinger's service at Hamburg describes the particulars of three cases of fever from a stricture in the urethra. Catheterization was probably responsible for the penetration of the bacteria into the blood in some. Lengthwise erosions were noted in one case. In others, the efforts at urination probably forced the urine accumulated above the stricture directly into the tissues and thence into the blood. The penetration of the germs into the blood causes the chill and urethral fever in a certain proportion of cases. The germs may vanish from the blood and all symptoms rapidly disappear, or they may lead to sepsis or septic endocarditis. The milder variety of urethral fever is probably due to the invasion of non-pathogenic germs. Lenhartz has reported that out of 38 cases of malignant endocarditis in his experience, 7 had been preceded by catheterization or other manipulation of the urinary passages. In one of the rapidly-recovering personal cases described, the proteus was found in enormous quantities in the blood and 60 colonies of streptococci were derived from 15 c.c. of blood in the other. He distributes this amount of blood in 6 tubes of liquefied agar, from which he makes a plate culture. Thousands of colonies of staphylococci and colon bacilli were derived from 15 c.c. of blood, as well as from the urine of a third patient. The first chill and fever were followed by comparative recovery for twelve days, after which the symptoms recurred with greater intensity and the staphylococcus was found in pure cultures. The autopsy disclosed a septic endocarditis of about a week's duration, corresponding to the severer symptoms. The patient had been catheterized three times in the course of the bacteriemia. His condition did not permit surgical intervention. The article concludes with the warning that dilation of strictures requires the most extreme care. Lenhartz's experience confirms the dangers of the procedure, as also a case of sepsis after catheterization described in the *Wien. Klin. Woch.*, 1896, 18. The bladder should be disinfected beforehand, if possible, or at least afterward. Bougies with guides are safer than others. In severe cystitis a permanent catheter is perhaps advisable. Salol or urotropin should be given immediately after the dilation and, if possible, beforehand. By observing these precautions Wiesinger has reduced the number of cases of urethral fever in his service to 2 out of 18 patients with strictures submitted to multiple catheterization, while in 1900 he had 8 cases of it in 6 out of 16 patients. The patients have usually been more or less infected before reaching the hospital. The practical conclusions from his experience are that when a violent chill follows careful catheterization or the blood contains bacteria, the stricture should be excised at once without delay, afterward reuniting the anterior wall of the urethra according to König.

77. **Insufficient Tension of the Muscles and Its Treatment.**—Lange reiterates that a lack of elasticity or excess of length is responsible for insufficient function of muscles and tendons in many cases in which it is erroneously referred to other causes: He reports a number of cases treated on this principle by shortening the muscle. In one patient bilateral pes calcaneus, existing for twelve years after Little's disease, was completely corrected by taking a tuck in the tendo Achillis. The threads suppurated out in one foot, but the desired result was obtained in both. The gastrocnemius in this case behaved as if paralyzed, while in fact the trouble was merely the excessive length of the tendon. He usually shortens a tendon by

weaving a silk thread lengthwise through it and back again in parallel stitches. When the thread is drawn taut and the ends tied, the tendon is shortened and the straight edge becomes wavy. Lange advocates this method for the treatment of traumatisms or deformities of tendons or muscles. Intervention to shorten unduly long muscles promises as excellent results as tenotomy for unduly short ones.

81. **Traumatic Heart Affections.**—Ercklentz has collected and reviews 18 cases of rupture of the heart from a contusion and 5 of tissue degeneration from the same cause. He reports six cases of traumatic affections of the heart personally observed. One patient was a woman of 60, and an old caseous tubercular focus was found in the lung at the autopsy. The traumatism had evidently crushed it and released the bacilli which had then settled on the pericardium and had induced a fresh tubercular pericarditis, fatal in less than ten weeks. In another case a febrile acute endocarditis developed in a young person after contusion of the thorax. He has witnessed three cases of chronic endocarditis, the patients being a man of 30 and boys of 12 and 17. The aortic valve was lacerated in one patient. In all his personal cases the injury had been caused by a passing wagon.

83. **Intestinal Putrefaction with Varying Diet.**—Backman reports tests which confirm the facts that the carbohydrates do not seem to have much influence on putrefaction in intestines. It is proportionate to the amount of albumin in the food. An exclusive or predominant milk diet materially diminishes the putrefactive processes.

84. **Gastric Achylia.**—Kuttner deprecates the separation of gastric achylia from the ordinary disturbances in secretion in the course of catarrhal or atrophic processes in the gastric mucosa. If there is a special nervous foundation for the condition we have no means yet of proving it.

86. **Influence of Antipyresis on Agglutinative Power of the Blood.**—Beniasch attributes the discredit into which the antipyretics have fallen of late, as merely the reaction to the exaggerated enthusiasm of twenty years ago. If the febrile temperature is, as some assert, a necessary weapon in the struggle of the organism with the infection, it is a two-edged sword, as it entails a series of most unwelcome phenomena. It is subjectively experienced as a very severe symptom, and objectively it induces a number of threatening manifestations on the part of other organs, especially of the heart and nervous system. The artificial lowering of the temperature by the antipyretics did not diminish the agglutinating power of the blood in the twenty-three cases of typhoid fever examined. If any effect was perceptible it seemed to be rather an increase.

89. **Ocular and Visual Disturbances Induced by Tobacco.**—Santos Fernandez announces that disturbances of this kind are comparatively rare in Havana, notwithstanding the widespread use of tobacco. Conjunctivitis produced by floating particles in tobacco factories is extremely rare and mild. There are 150 tobacco factories and they employ between 12,000 and 13,000 employees, but the buildings are not constructed so airtight as in colder climates, and Havana tobacco, he adds, contains only 2 or 3 per cent. nicotin, while French and American tobacco has 8 to 9 per cent. This is probably the reason why nicotin amblyopia is so much less frequent than in Europe, notwithstanding the incessant smoking. His experience includes 36,000 inscribed patients and 200,000 consultations in his ophthalmologic practice. Asthenopia is more frequent, and he also mentions the predominance of hypermetropia in Cuba in contrast to other countries in which myopia generally prevails.

93. **Antithermic Therapeutics.**—Maragliano calls attention to the individual thermic resistance of each patient, that is, the resistance which his organism opposes to the means we apply to reduce the fever. It varies with the age, sex, etc., and at different periods of the disease in the same subject, but it is an important factor in the result attained by therapeutic and physical measures. The thermic resistance of each patient must be determined in order to secure the best results from baths in the treatment of the fever. The first bath should be of moderate temperature and its influence on the rectal temperature carefully noted. This will establish a standard for succeeding baths, raising or lowering the temperature as indicated by the reaction to the first bath. If the temperature falls below 37 C., the water was too cold; if the drop is less than one or three degrees C. the water was not cold enough. The temperature of the bath should thus be adjusted to the thermic resistance of the patient as determined by the first bath at a moderate temperature. The thermic resistance is always most marked in erysipelas and typhoid fever. Attempts to regulate the temperature of the bath by the peripheral temperature of the patient, he considers rank empiricism. As the aim of the bath is to promote the elimination of heat, this should be favored as much as possible by stimulating the cutaneous circulation by friction during and after the bath, and by the administration of a certain amount of alcohol before the bath. This has the property of stimulating the cutaneous circulation, while at the same time it induces a slight degree of vasomotor paralysis. Antipyrin has practically the same effect, but alcohol is not so dangerous a poison for the protoplasm as antipyrin. The patient should be covered warmly with blankets after the bath to promote still further the cutaneous circulation, unless it is already active and the skin red, when the blankets can be dispensed with. It is advisable to supplement the action of the bath by a cloth tucked around the trunk from the inguinal to the axillary region, kept moistened with cold water. In case hydrotherapeutic measures are impracticable and the physician has to use chemicals, quinin then ranks first. Its action is not apparent before eight hours, but it is equally effective in all kinds of fevers. The only problem is to proportion the dose to the disease. When more rapid action is desired pyramidon, antipyrin and phenacetin are the least harmful of the chemical group.

94. **Pathogenesis of Exophthalmic Goitre.**—Tedeschi has established that a lesion of the restiform body is able to induce in rabbits and dogs not only exophthalmus and tachycardia, but a generalized tremor, polyuria, glycosuria and salivation. This occurred invariably in his experimental research when the lesion was in the anterior portion of the restiform body, directly behind the auditory tubercle.

98. **Inoculation of Vaccine from Calf to Calf.**—Umeno is chief of the official vaccine laboratory of Japan. He became convinced that the reason for the failure of calf-to-calf inoculation was that the virus was used in too concentrated a form. By diluting it to one-twelfth he found that it could be passed through fifty calves in turn, gaining instead of losing in effectiveness. He inoculates an area of 2.5 sq. cm. to the kilogram of the animal, and the pustule matures after the same interval as when humanized lymph is used.

Queries and Minor Notes.

SHOULD THE PHYSICIAN CHARGE?

LAFAYETTE, IND., April 24, 1902.

To the Editor:—Suppose the unmarried daughter (over age) of a physician long since dead, and who is worth considerable property is treated by a physician and dies, is the doctor justified in presenting a bill against her estate? Should not the doctor charge for treating the daughter of a deceased doctor who has married a man outside the medical profession? SUBSCRIBER.

ANS.—Yes, in both cases.

New Patents.

Patents of interest to physicians, April 8 and 15:

697,336. Tongue scraper. Ida Hagerty, Austin, Texas.
697,209. Device for facilitating taking pills. Benno Koppenhagen, Unterneubrunn, Germany.
697,412. Syringe nozzle. Robert L. McMurran, Portsmouth, Va.
697,164. Abdominal support. Isaac E. Palmer, Middletown, Conn.
697,181. Instrument for cooling or for warming internal portions of the human body. Roy E. Smith, Portland, Ore.
697,117. Pocket inhaler. Harry J. Valentine, Hempstead, N. Y.
697,825. Nursery milk warmer and night lamp. John M. Fisk, Malone, N. Y.
697,637. Shield for vaccinations, etc. John E. Lee, Conshohocken, Pa.
697,731. Making lithophone. Iens P. Lihme, Cleveland, Ohio.

The Public Service.

Army Changes.

Movements of Army Medical Officers under orders from the Adjutant-General's Office, Washington, D. C., April 10 to 16, 1902, inclusive:

George M. Decker, contract dental surgeon, leave of absence for fifteen days, to take effect on his arrival in the United States.

Basil H. Dutcher, captain and asst.-surgeon, U. S. A., member of a board at West Point, N. Y., to examine the cadets of the graduating class at the U. S. Military Academy.

Douglas F. Duval, lieutenant and asst.-surgeon, U. S. A., is relieved from duty on the transport *Thomas* and from further duty in the Division of the Philippines; on arrival of the transport at San Francisco, Cal., he will report for duty at Fort Williams, Me.

Charles L. Heizmann, lieut.-col. and deputy surgeon-general, relieved from duty as chief surgeon, Division of the Philippines, to take effect about June 1, 1902, when he will proceed to San Francisco, Cal., and report by telegraph to the Adjutant-General of the Army for orders.

Walter D. McCaw, major and surgeon, U. S. A., president of a board at West Point, N. Y., to examine members of the graduating class at the U. S. Military Academy.

James E. Mead, captain and asst.-surgeon, Vols., leave of absence for one month granted, taking effect from April 10, 1902.

Alexander N. Stark, captain and asst.-surgeon, U. S. A., member of a board at West Point, N. Y., to examine cadets of the graduating class at the U. S. Military Academy.

Albert E. Truby, lieutenant and asst.-surgeon, U. S. A., on his arrival from Cuba to report for duty at Fort Wadsworth, N. Y.

Henry S. Turrill, major and surgeon, U. S. A., on his arrival at San Francisco, Cal., to report at Omaha, Neb., for duty as chief surgeon of the Department of the Missouri.

Sanford H. Wadhams, lieutenant and asst.-surgeon, U. S. A., leave of absence for one month granted.

Charles K. Winne, lieut.-col., and deputy surgeon-general, relieved from duty as chief surgeon, Department of the Missouri, to take effect April 30, 1902, and to proceed to his home to await retirement from active service.

During the week boards were appointed to meet at certain military stations on May 1, 1902, for the examination of such candidates for the Military Academy as might be authorized to appear before them. The following medical officers were constituted members of these boards:

At Fort Warren, Mass., George W. Mathews, lieutenant and asst.-surgeon. At Fort Ethan Allen, Vt., Charles B. Mittelstaedt, contract surgeon. At Fort Columbus, N. Y., William H. Corbusier, major and surgeon, and Eugene H. Hartnett, lieutenant and asst.-surgeon. At Fort Porter, N. Y., William P. Kendall, major and surgeon. At Fort McHenry, Md., William F. Lippitt, Jr., captain and asst.-surgeon. At Fort Thomas, Ky., William W. Gray, major and surgeon, and Francis M. Wall, contract surgeon. At Fort McPherson, Ga., William D. Crosby, major and surgeon. At Fort Sheridan, Ill., Francis J. Ives, major and surgeon, and Charles F. Smith, contract surgeon. At Jefferson Barracks, Mo., Francis A. Winter, captain and asst.-surgeon, and Alva R. Hull, contract surgeon. At Fort Logan H. Roots, Ark., Carle E. Bentley, contract surgeon. At Jackson Barracks, La., Henry C. Fisher, captain and asst.-surgeon. At Fort Snelling, Minn., Elbert E. Persons, lieutenant and asst.-surgeon. At Fort Leavenworth, Kan., Henry P. Birmingham, major and surgeon, and David Baker, lieutenant and asst.-surgeon. At Fort Sam Houston, Tex., Charles F. Mason, major and surgeon. At Fort Logan, Colo., John L. Shepard, contract surgeon. At the Presidio of San Francisco, Cal., Henry S. Greenleaf, lieutenant and asst.-surgeon, and Milton E. Lando, lieutenant and asst.-surgeon.

Navy Changes.

Changes in the Medical Corps of the Navy, week ending April 19, 1902:

Asst.-Surgeon W. L. Bell, ordered to Pocatello, Idaho, on recruiting duty.

Asst.-Surgeon R. M. Young, detached from the *Rainbow* and ordered to the Cavite Naval Station.

Dr. F. M. Munson, appointed asst.-surgeon, April 5.

P. A. Surgeon M. S. Guest, detached from the Cavite Naval Station and ordered to the *New Orleans*.

P. A. Surgeon H. D. Wilson, ordered to duty with the Marine brigade, Philippine Islands.

Asst.-Surgeon R. C. Holcombe, ordered to proceed home via *Manila*.

Marine-Hospital Changes.

Official list of the changes of station and duties of commissioned and non-commissioned officers of the U. S. Marine-Hospital Service for the seven days ended April 17, 1902:

Surgeon C. E. Banks, granted leave of absence for five days from April 14.

Asst.-Surgeon M. J. White, to proceed to Reno, Nev., for special temporary duty.

A. A. Surgeon B. W. Goldsboro, granted leave of absence for seven days.

A. A. Surgeon R. T. Walker, granted leave of absence for 18 days from May 1.

BOARDS CONVENED.

Board convened at Baltimore, Md., to inspect steam tug *Neptune*. Detail for the Board: P. A. Surgeon H. D. Geddings, M.-H. S., and Chief Engineer H. W. Spear, R.C.S.

Board convened at the Bureau April 14, for the physical examination of candidates for appointment to grade of second assistant engineer, R.C.S. Detail for the Board: Surgeon L. L. Williams, chairman, and Asst.-Surgeon S. B. Grubbs, recorder.

Board convened at New Orleans, La., April 14, for physical examination of an officer of the Revenue Cutter Service. Detail for the Board: P. A. Surgeon C. P. Wertenbaker, Chairman, and Asst.-Surgeon J. W. Schereschewsky, recorder.

Board convened at Marine Hospital Office, San Francisco, Cal., April 21, to examine officers of Revenue Cutter Service. Detail for the Board: P. A. Surgeon W. G. Stimpson, chairman, and P. A. Surgeon H. S. Cumming, recorder.

Board convened at Marine Hospital, Port Townsend, Wash., April 21, to examine an officer of the Revenue Cutter Service. Detail for the Board: P. A. Surgeon C. H. Gardner, chairman, and Asst.-Surgeon M. H. Foster, recorder.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague, have been reported to the Surgeon-General, U. S. Marine-Hospital Service, during the week ended April 18, 1902:

SMALLPOX—UNITED STATES.

California: Los Angeles, March 29-April 5, 9 cases; San Francisco, March 30-April 6, 9 cases.

Colorado: Denver, March 28-April 4, 8 cases.

Illinois: April 5-12, Chicago, 14 cases; Freeport, 1 case.

Indiana: April 5-12, Evansville, 5 cases; Indianapolis, 13 cases; Terre Haute, 2 cases.

Kansas: Wichita, March 29-April 12, 9 cases; one case imported from Oklahoma.

Kentucky: Covington, April 6-13, 7 cases.

Louisiana: April 5-12, New Orleans, 1 case imported from Mississippi; Shreveport, 7 cases.

Maine: Portland, April 5-12, 9 cases, 1 death.

Maryland: Baltimore, April 5-12, 1 case.

Massachusetts: April 5-12, Boston, 13 cases, 3 deaths; Brockton, 2 cases; Cambridge, 2 cases; Everett, 1 case; Lawrence, 1 death; Lowell, 2 cases; Malden, 1 case; New Bedford, 1 case; Quincy, 2 deaths; Somerville, 3 cases.

Michigan: April 5-12, Detroit, 18 cases; Ludington, 19 cases.

Minnesota: Winona, April 5-12, 2 cases.

Missouri: St. Louis, March 30-April 6, 50 cases.

Montana: Butte, March 30-April 13, 7 cases.

Nebraska: Omaha, April 5-12, 24 cases.

New Jersey: Camden, April 5-12, 4 cases; Hudson County, including Jersey City, March 30-April 6, 30 cases, 9 deaths; Jersey City, March 30-April 6, 24 cases; Newark, April 5-12, 42 cases, 10 deaths.

New York: New York, April 5-12, 66 cases, 12 deaths.

Ohio: Cincinnati, April 4-11, 16 cases; Dayton, April 5-12, 1 case; Hamilton, March 9-April 5, 5 cases; Toledo, April 5-12, 2 cases; Youngstown, April 5-12, 1 case.

Pennsylvania: Altoona, April 5-12, 2 cases; Johnstown, April 5-12, 1 case; Philadelphia, April 5-12, 35 cases, 4 deaths; Pittsburg, March 29-April 12, 10 cases; York, March 5-April 5, 7 cases, 3 deaths.

Rhode Island: Providence, April 5-12, 5 cases.

South Carolina: Greenville, March 29-April 5, 4 cases.

South Dakota: Sioux Falls, April 5-12, 3 cases.

Tennessee: Memphis, April 5-12, 8 cases.

Utah: Ogden, March 1-31, 4 cases; Salt Lake City, April 5-12, 1 case.

Washington: Tacoma, March 30-April 6, 7 cases.

Wisconsin: Green Bay, April 5-12, 7 cases; Milwaukee, March 29-April 5, 1 case.

SMALLPOX—INSULAR.

Porto Rico: March 1-22, Arecibo, 61 cases; Ciales, 6 cases; Fajardo, 1 case; Humacao, 1 case; Ponce, 12 cases; San Juan, 6 cases.

SMALLPOX—FOREIGN.

Austria: Prague, March 15-29, 13 cases.

Barbados: March 30, 10 cases.

Belgium: Antwerp, March 22-29, 10 cases, 4 deaths.

Brazil: Pernambuco, Feb. 14-28, 27 cases, 27 deaths.

Canada: Belleville, March 31-April 7, 1 case; Quebec, March 29-April 12, 48 cases, 1 death.

France: Paris, March 22-29, 1 death; Rheims, March 16-30, 51 cases, 4 deaths.

Great Britain: Birmingham, March 22-29, 1 case; Dundee, March 22-29, 1 case; Glasgow, March 28-April 4, 13 cases; Leeds, March 22-29, 2 cases; Liverpool, March 22-29, 4 cases, 1 death; London, March 22-29, 389 cases, 61 deaths; North Shields, March 15-22, 7 cases; Sheffield, March 15-22, 1 case; South Shields, March 22-29, 2 cases.

India: Bombay, March 4-18, 19 deaths; Calcutta, March 1-15, 14 cases; Karachi, March 2-16, 8 cases, 6 deaths; Madras, March 8-14, 4 deaths.

Italy: Caserta, March 24, many cases; Milan, Feb. 1-28, 5 cases, 3 deaths; Naples, March 15-22, 7 cases, 1 death; Palermo, March 15-29, 37 cases, 4 deaths; Santa Maria Capuavetere, March 24, many cases.

Mexico: Mexico, March 23-30, 2 cases; 3 deaths.

Netherlands: Rotterdam, March 22-29, 2 cases.

Russia: Moscow, March 15-22, 18 cases, 3 deaths; Odessa, March 22-29, 2 cases, 1 death; St. Petersburg, March 15-29, 14 cases.

Switzerland: Geneva, March 8-15, 1 case.

YELLOW FEVER.

Dutch Guiana: Paramaribo, Feb. 1-28, 7 deaths.

French Guiana: March 31, Mana, infected; St. Jean, infected; St. Laurent, infected.

CHOLERA.

China: Honan, April 10, epidemic; Hongkong, March 4, 1 case.

India: Bombay, March 4-18, 41 deaths; Calcutta, March 1-15, 258 deaths.

Turkey in Asia: Djiddah, to March 27, 38 deaths; Mecca, to March 27, 788 deaths; Medina, to March 27, 381 deaths; Rebuk, to March 27, 1 death.

PLAGUE—INSULAR.

Philippine Islands: Manila, Feb. 1-22, 2 cases, 2 deaths.

PLAGUE—FOREIGN.

China: Shultung, Feb. 10, 300 deaths; Yeung Kong, Feb. 10, prevalent.

India: Bombay, March 2-18, 1635 deaths; Calcutta, March 1-15, 963 deaths; Karachi, March 2-16, 167 cases, 147 deaths; Madras, March 8-14, 1 death.